

January
1984

AN ARGUS SPECIALIST PUBLICATION

NEW GAMES COMPUTING

The magazine for those who take their computer and video games seriously

80p

Save **SPAM** from the
Runaway **Robot** in this
meaty **Spectrum** game

Frenetic fun
games to play
for **Oric, Atari,
BBC, Electron,
Spectrum,
VIC, Sharp,
CBM 64,
Texas**

FREE: Pull-out
POSTER PROGRAM
Moon Rescue

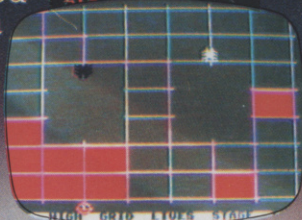
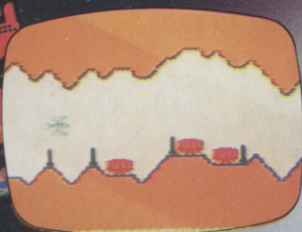


TERMINAL SOFTWARE

commodore 64 games cassettes

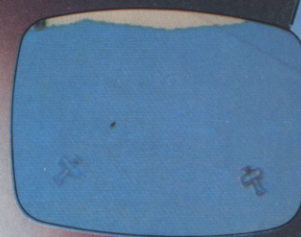
SUPER SKRAMBLE!

Personal Computer News (15-21 Sept '83) gave SUPER SKRAMBLE! an overall rating of NINETEEN OUT OF TWENTY and described it as: "Well implemented with beautifully smooth scrolling and very nice graphics."



SUPER GRIDDER

"... a compelling piece of frivolity that could give hours of fun." was the verdict of Personal Computer News (22-28 Sept '83).



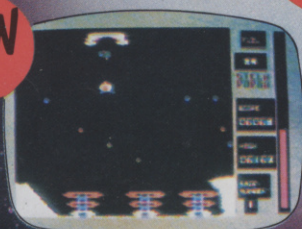
SUPER SKRAMBLE!

"An excellent game" said Computer & Video Games magazine (Sept '83).

STELLAR DODGER

A game of skill and anticipation in which you must dodge your way through asteroids to complete your mission.

NEW



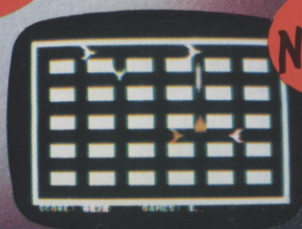
TERMINAL

The first 64 games cassette to have **SIMULTANEOUS TWO-PLAYER ACTION** - realistic sound effects too.

HUNTER

A fast action game in which your pursuers gain in speed and intelligence as you master each successive screen.

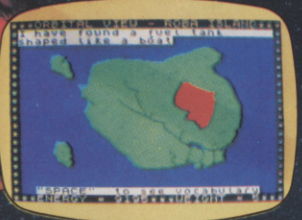
NEW



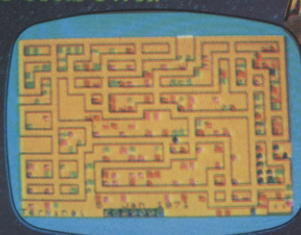
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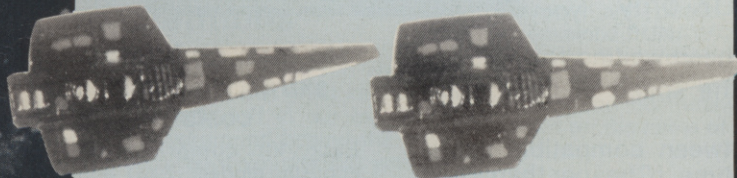
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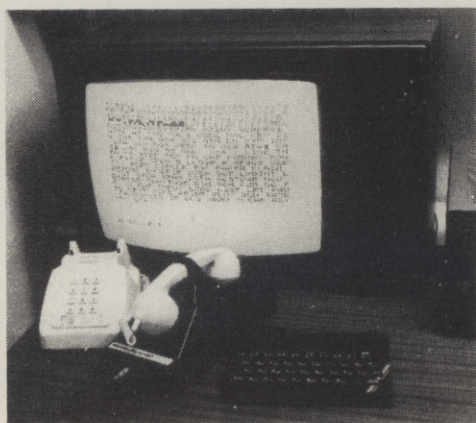
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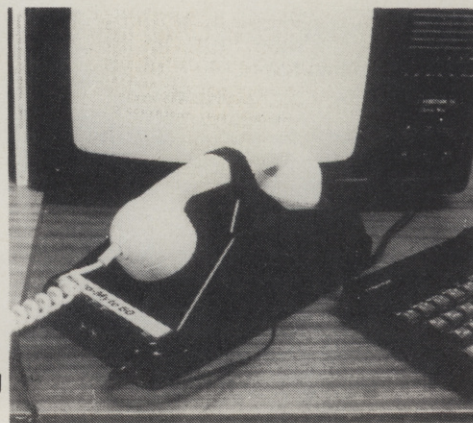


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**YOU CAN NOW
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Deep in the galaxy of computer games lurk vast numbers of keen gamers waiting with baited breath for all they can possibly glean about breaking games frontiers. But there was a huge void. Until . . . **GAMES COMPUTING!**

A magazine for those who take computer and video games seriously. Packed full of programs for you to play around with and key into your own machine, news of the latest games to be released for you to break high-score barriers with, reviews of all kind of games from space

So what we at *Games Computing* want you to do is give our Runaway Robot a name. In future issues of *Games Computing* he'll be popping up all over the place throughout the magazine. In this issue you'll find him running amok on the pages devoted to the Spectrum program of the same name.

If you want to enter this competition for a bit of fun and a giggle why not turn to the program called Runaway Robot and read it thoroughly. That will give you an idea of our Mr Robot's character and

If you want to enter the competition you must accompany your entry with the coupon cut from the corner of this page. I'm afraid the riotous Runaway Robot is making his mark on *Games Computing* already and insists that you cannot send in a photocopy of the coupon. Sorry lads.

So, put your pens into action — we're all waiting eagerly in the offices for the names to pour in and save our Runaway Robot from a life of gloom and doom. He's waiting for you. . . .

Intro...

favourites, alien blasting bombarding, adventures in haunted castles with goblins and ghouls, strategy games for the more serious, and all your arcade favourites.

Wargames and Competitions

Wargamers can have fun and games each month with our great series on the subject. It kicks off in our launch issue with the background behind the birth of wargaming, so if you are not yet one of the topic's devotees you may well end up being one if you stick to our series.

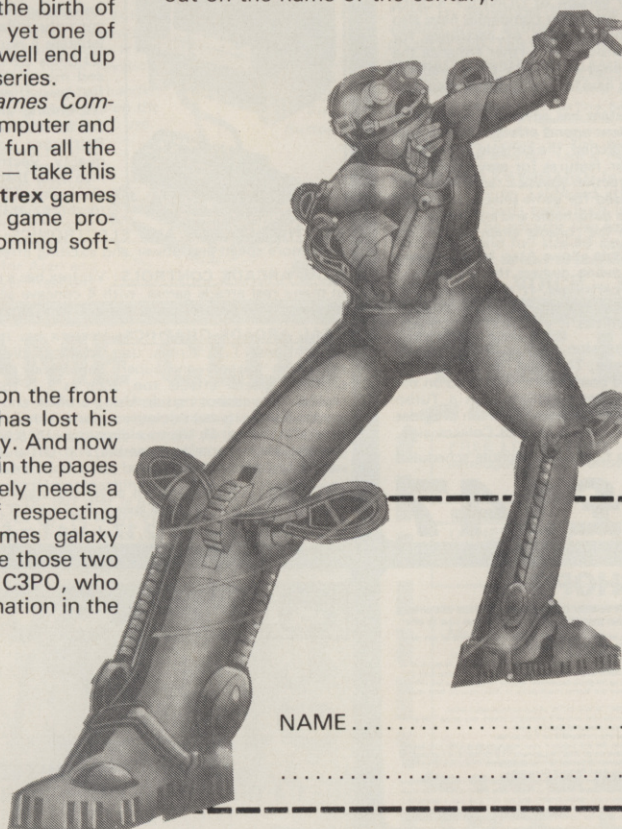
In the months to come *Games Computing* will make sure your computer and video gaming is nothing but fun all the way. There'll be competitions — take this month's for a start. Win a **Vectrex** games console and have your own game produced and sold by up-and-coming software firm **Visions**.

Runaway Robot Needs a Name

That forlorn looking creature on the front cover of *Games Computing* has lost his marbles — but only temporarily. And now that he's found his new home in the pages of our magazine he desperately needs a new name. After all, no self respecting robot would wander the games galaxy without a proper name — take those two endearing androids R2D2 and C3PO, who leapt to the hearts of many a nation in the great film *Star Wars*.

could help you think of a witty yet appropriate name for him.

To enter the competition just send your chosen name to the Editor, *Games Computing*, 145 Charing Cross Road, London WC2H 0EE. All entries must be received by January 31, 1984 (seems like light years away) and please mark clearly on the envelope **RUNAWAY ROBOT COMPETITION**. If you don't, your entry is likely to get mixed up with other competition entries and our runaway robot could miss out on the name of the century!



More More More

If you flick to the centre pages of *Games Computing* you'll see a super colour poster which you can pull out and keep. Stick it up wherever you want (and I don't want any rude suggestions) — on your bedroom wall, or perhaps somewhere suitable at school, but don't forget to ask for permission first.

And each month we'll give you a different, bright poster illustrating one of the games published in *Games Computing* — so make sure you get your copy of *Games Computing* regularly each month and don't miss out on this great opportunity.

We want to hear from you

With that, I hope you'll enjoy reading the first issue of *Games Computing* and have a whale of a time doing so. You'll doubtless notice that we haven't included a letters page in this issue for obvious reasons. And if you can't guess what they are — we haven't got any readers yet. But we're dying to hear what you think of the magazine so write in and let us know the good news, the bad news and any suggestions for *Games Computing* — as long as they're printable!

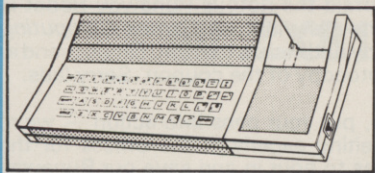
**I WOULD LIKE TO CALL
THE ROBOT**

NAME

POST CODE

HOME COMPUTERS

20K AQUARIUS



AQUARIUS: The brand new Aquarius Personal Computer is part of Mattel Electronics latest developments in advanced technology and offers full home computing facilities, as well as extensive game play, using a very wide range of plug in cartridges. Since Aquarius is a Mattel Electronics product, it benefits by the company's wide experience of producing high technology equipment, as well as their game programming expertise which is evident from the advanced games which have been produced for the Intellivision. Aquarius costs £49 and comes with microsoft basic built in. It is so simple to use that you'll be writing your first programs within minutes of taking the machine out of its box. You can even record the programs on your own cassette recorder at home, so you can use them again at a later date. Most available domestic tape recorders are compatible with the Aquarius.

A POWERFUL MACHINE: For all it's simplicity, it is also very sophisticated. It has a 280A processor and it comes with 8K of built in ROM and 4K of RAM, expandable to 52K. It has a display of 40 x 24 characters, and a graphic resolution of 320 x 192 with a total character set of 256 (including the complete ASCII set with upper and lower case letters, numbers and additional graphic symbols). The keyboard has 49 full stroke moving keys, unlike some of the cheaper machines which have membrane keyboards. The size of the machine (excluding any of the additional peripherals), is 13" x 6" x 2".

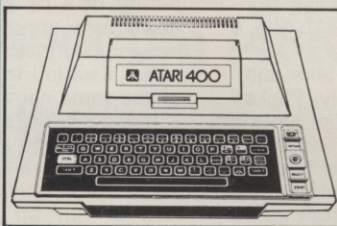
PERIPHERALS: It is very easy to increase the capabilities of your Aquarius as all the peripherals plug straight into one another. You can add a Printer, a Modem, a Data Recorder, Mini Expander and other items. All of the peripherals are very easy to install and what is more, they're easy to use. But the best news of all is, they're easy to afford.

CPM OPERATING CAPABILITY: The Aquarius is capable of being expanded to 52K RAM and later in 1983 a disk drive will be available for it, with the commercial CPM business operating system. This will allow you access to one of the largest software libraries in the world, with literally hundreds of programs available for you to use.

CARTRIDGES: Various sophisticated programs have been launched on plug in cartridges such as a Visicalc spreadsheet and a word processor. Other cartridges include popular Intellivision titles and are available for as little as £12.95.

4K Mattel AQUARIUS — £42.61 + VAT = £49
20K Mattel AQUARIUS — £67.83 + VAT = £78 **£49**

ATARI 400/800



NEW LOW PRICES

ATARI 400/800: With the Atari Personal Computers, you can play the ultimate in T.V. games, teach yourself new subjects or skills, balance budgets, and even write your own computer programs in Basic.

SPECIFICATIONS: Both the Atari 400 and 800 can display in up to 16 colours, each with 16 intensities. They have four independent sound synthesizers for music tunes/game sounds, giving four octaves with variable volume and tone control on your T.V.'s speaker. The display graphics

are of amazing quality, having a detailed resolution of 320 x 192, comprising 24 lines of 40 characters. Atari personal computers have a standard 10K ROM operating system. In addition to this the standard Atari 400 (£99) comes with 16K of RAM and the expanded version with 48K (£158). The Atari 800 (£249) comes with 48K as standard. Both the 400 and 800 are now supplied with a FREE E40 Basic Programming Kit, which includes the Basic Programming Cartridge, as well as a 120 page Basic Reference Manual and the 184 page Self Teaching Manual by Bill Carris called 'Inside Atari Basic', so you can begin programming straight away, without buying any 'extras'. Even a mains plug is supplied!

OVER 500 PROGRAMS AVAILABLE: The Atari computers are supported by well over 500 programs available for your use, a larger selection than you will find on any other television game or home computer! The wide selection puts Atari way ahead of the competition. Just fill in the coupon and we will be pleased to send you a full price list which gives details of our range of software available for entertainment, home education, programming and home office use. We think you'll agree when we say it's quite impressive.

100 FREE PROGRAMS FROM SILICA SHOP: If you buy your Atari 800 from Silica Shop, you will receive a FREE presentation pack of 6 cassettes containing 100 programs, including games, utilities and demonstrations. Unfortunately, because of the low price at which we are offering the Atari 400, we are unable to give the programs with both machines. However, as a special offer, we are selling the programs to purchasers of the Atari 400 for only £14.95, less than half of the recommended retail price of £30. Silica Shop offer a TWO YEAR GUARANTEE on both Atari 400 and 800 home computers.

ATARI 400 With 16K — £86.08 + VAT = £99
ATARI 400 With 48K — £137.39 + VAT = £158 **£99**
ATARI 800 With 48K — £216.52 + VAT = £249

COLECOVISION



THE SYSTEM: The CBS Colecovision offers new standards in video game play. The excellent graphics are well implemented with arcade titles such as Zaxxon, Lady Bug, Gorf, Wizard of Wor, Carnival, Mouse Trap and the lovable Smurfs. The console comes supplied with a three screen arcade quality version of DONKEY KONG. Parker and other companies have also announced ranges of cartridges for Colecovision, to further enhance the wide range of quality titles available for this new television games machine.

THE CONSOLE: The CBS Colecovision video games system has advanced technology which produces superlative graphics resolution and excellent sound effects. The styling of the console and hand controllers has been carefully researched; the console is designed to complement modern hi-tech equipment, and has clear features for easy operation. The hand controllers allow fingertip control via the 8 direction joystick, and feature 2 independent fire buttons. The push button keyboard is used for game selection and for game control with some cartridges. The hand controllers are detachable and are connected to six feet of telephone coil cable, storing neatly away in the console when not in use.

ATARI EXPANSION MODULE: The Atari converter module allows Atari VCS software cartridges to be played on the Colecovision console, allowing owners the freedom to purchase from the extensive range of Atari compatible cartridges. It also means that existing Atari owners can buy the CBS Colecovision games system without discarding their software library. Silica Shop offer part exchange facilities if you wish to upgrade.

TURBO EXPANSION MODULE: The Turbo Driver Expansion Module allows you to actually drive the vehicle that appears on your T.V. screen. The module consists of a steering wheel, dashboard and accelerator pedal. One hand controller is mounted on the dashboard to provide a gear change unit. The module comes complete with a Turbo Driver cartridge, the first of several cartridges to make use of the module, which provides all the action of sitting in the driving seat. This facility is unique to CBS Colecovision.

HOME COMPUTER EXPANSION MODULE: The Home Computer Module scheduled for late 1983, allows conversion of the games unit into a sophisticated Home Computer. This flexibility of design is an important feature of the CBS Colecovision System.

COLECOVISION - £127.82 + VAT = £147 **£147**

VECTREX



THE SYSTEM: Vectrex is a totally unique Home Arcade System, which has been exclusively designed and engineered to duplicate real arcade game play. Complete with its own monitor display, Vectrex won't cause any arguments over the use of the family's television because it has its own built in screen.

THE SCREEN: Vectrex does not use ordinary display techniques, instead it uses vector scanning to control the images on the screen. With this scanning method, the gun only updates the area of the screen that has changed, whereas a normal T.V. re-transmits the ENTIRE screen 50 times a minute. It is this that gives Vectrex its speed, and means that very little computer power is required for screen control, and the results provide very fast responding and clear images. These 'Vector Graphics' are used in several arcade games such as Asteroids and Battlezone, to give you incredibly high resolution and quality. Vectrex brings all of this from the arcade right into your living room. The Vectrex screen is capable of displaying 80 columns by 40 lines, which is significant to the extensive developments planned for the system.

EXCITING SOUNDS AND ELECTRONICS: Vectrex has an advanced microprocessor with more speed and power and exciting effects than many home video games systems.

REAL ARCADE CONTROLS: Vectrex has a unique control panel, similar to those used in many real arcade games, with 4 concave action buttons and a full 360° self centering joystick. This control panel has a 4 foot detachable cord for maximum player freedom.

REAL ARCADE GRAPHICS: Vectrex has its own 9 inch vertical screen and unlike a conventional T.V. screen, uses advanced display technology to achieve brilliant, high resolution imagery and superb game play never before possible. The Vectrex display provides special effects too, such as 3-D rotation and zooming in and out, which a regular T.V. cannot match. Using a black and white monitor, each Vectrex game comes supplied with its own coloured plastic screen overlay to add to the excitement of game play. The range of Vectrex cartridges (£19.95 each), gives a good selection of arcade games such as Berzerk, Scramble, Rip-Off and Bomber Attack. Vectrex comes complete with a fast paced 'Minestorm' game built into memory.

VECTREX: Vectrex has an advanced state-of-the-art microprocessor with more speed than other T.V. games.

VECTREX — £112.17 + VAT = £129.00 **£129**

WHO ARE SILICA SHOP?

Silica Shop are one of the leading specialist suppliers of Video Games & Personal Computers. We consider that our service, to those who already own or to those who are interested in any products in our range, cannot be matched by any other supplier. Just look at what we have to offer:

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- **PART EXCHANGE:** we will offer you up to one third of our current selling price in part exchange on your old Mattel Intellivision or Atari console (and related cartridges), if you decide to buy a new video game or personal computer from us.
- **SECONDHAND GOODS:** we sell secondhand Mattel & Atari consoles/cartridges (with a full 1 year guarantee), at two thirds of our normal retail price.
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- **ATARI SERVICE CENTRE:** we are now an authorised Atari service centre and can therefore accept repairs on all Atari equipment (TV Games and Computers) even if you did not originally purchase it from Silica Shop. All repairs during the manufacturers 1st year warranty period will be completed FREE OF CHARGE.
- **2 YEAR GUARANTEE:** we offer a 2 year extension on some manufacturers 12 month guarantee, including Atari Personal Computers.
- **VIDEO GAMES AND COMPUTER CLUBS:** we offer a full information service on all video games and computers in our range. Advanced information on many new developments is often included, so you are always kept informed. We now issue regular newsletters on software releases to make sure that you join our club.
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Minefield is a program based around a very simple idea. All you have to do is cross the minefield, but this is not as easy as it may at first seem.

For a start, all the mines are hidden. The solution for this is obvious — get a mine detector. Unfortunately, yours is defective. While it will tell you how many mines surround you, it won't tell you where they are. You've got to work that out for yourself. The only help you've got is the fact that as you move over a square it is filled in. This means you can see the 'safe' areas.

Incidentally, if your detector (top left corner) reads safe, that means there are no mines either up, down, left, or right. To move, enter **U**(p) **D**(own) **L**(eft) **R**(ight). Head for the **H** and once you've made it (or been blown up) you'll get a chance to review your moves with the mines on the screen (no, you can't change a move!). This can be very revealing. There are six levels, each higher level adds 25 more mines. Good luck!

Inside the Game

Due to the fact that the array which holds the position on screen of all the mines takes up so much space, the program has to be both memory saving and as unrepentive as possible. This is the reason for all those GOSUBS, the lack of instructions and a whole lot more! This also means that there is not a lot of room for

changes, and none for REMS. However, for those who love to fiddle and for those who want to understand how the program is written, I have written a line-by-line explanation and a variable list. I hope this will make the program easier to understand. Incidentally, I'll point out the areas where those of you who are independently minded may like to make some changes to give that personal touch!

RUNdown

Line	Action
10	Define variables for start of screen and start of colour map. The peek used means that the program automatically adjusts for any memory size.
30-40	Input starting level. If you want to have more than six levels, change here.
110	GOSUB to work out mine positions, then to draw borders, etc.
150	Set player starting position on screen and colour maps.
200	Start of move loop. Print how many moves used so far.
205	GOSUB for mine detector reading.

210	Set M to O, to ensure that a move cannot 'autorepeat'. Also clears keyboard buffer, to ensure that an accidental key push cannot trigger move.
215-252	Loop which repeats until key is pressed, and which then gives a value for M.
255	Tells if you're trying to move onto a border, and prevents you doing so.
257	Set LP to where the player is now. Increase PP by M, giving the new player position. Also give new location on colour map, and increase count by one.
260	Test if you've made it home, by peeking for H.
263	POKEs up player's character on screen and colours maps.
265	Check if lines after 220 have been called as a GOSUB from line 10000. If so, return there.
270	Increase string B\$ by the latest movement instruction entered (AS/). This is for use in line 10000.
280	Check if the player has stepped on a mine.
320	Complete movement loop if



1000

nothing special has happened and the game is to continue. Loop to create and store the positions of mines at the start of a game. Line 1000 sets up loop, variable T here is number of mines in the game. To

1010

change the number of increases at each level the 25 here must be among the numbers changed.

Random number is created between 22 and 484. This is the area on the screen where the mines must be. This number is added to SM to give number POKED onto screen map. Then perform checks to see if number is in three safe squares at start or at H + 22.

1020

If mine position is O.K., store in array A.

1200

POKE border, and starts characters. Line 1200 POKES borders on screen and colour maps at top and bottom moving left to right.



1210

POKE lines left and right moving down sides of screen.

1220

POKE up H on screen and colour maps. Also POKE up three safe squares at bottom.

1700-1720

Sound routine.

1800

Routine to POKE the mines and colour maps onto the screen. The 25 here would have to be changed if you want to increase the number of mines increased per level.

1900

Sound routine.

3000

Mine detector GOSUB routine. Line 3000 sets variables to ensure that a maximum of one mine can be read in each direction. This is important because the routine at line 1000 does not trap the location of two mines on one location.



MINEFIELD

By Stephen Knight



ends the character on the screen will be in the same place as it was at the start of this routine.

Variable List

SM	Start point of screen map. Adjustable for different sized memories automatically.
CM	Start point of colour screen. Adjustable for different memories automatically.
SO	First of the 3 voices. $SO+1-SO+5$ gives 2 other voices, volume and screen/border colour. This is used throughout the program. Array A used to store positions on screen of mines.
C	Count of number of moves made each game.
RN	Random number used to position the H(ome) position (from 1-22).
X9	Flag used in GOSUB routine in lines 10000-10020.
PP	Present position of player on screen (including SM number).
PC	Present position of player on colour screen map (including CM number).
M	Number used to work out new PP and PC.
L	Level of play at present time.
MI-M4	Variables used as flags in GOSUB at 3000.
NM	Number of mines detected by the mine detector routine (3000) each time.
CH	Character to be used in GOSUB at 10000.
T,T2,T3	Variables used in sound and other loops.
A\$	String used in get statement.
B\$	String used in line 270 to keep a record of players movements.
X\$	String used in wait for key press in GOSUB at line 8700.

Key in and tread carefully . . .

3010 Start of loop to read array A where the locations on screen are stored. The 25 here would also have to be changed if a greater increase of mines per level is wanted.

3020-3045 For each line-check if mine already read in that direction. If not, set variable to show that one has the increased number of mines by one.

3055 If no mines are detected, prints 'safe' message.

3062-3064 If mine detected, print number found and play suitable sound effect.

4000 Sound effect.

5000 GOTO routine for when you've made it home. Set character for use in GOSUB 9900, print up mines, print borders, play sound, re-play game, wait till key is hit, and print results title page.

5010 Jumps to questions about what to do next.

6000 GOTO routine for stepping on a line. Line 6000 sets a character to inverse mine for use in 9000.

6010 GOSUB to sound, clear screen, print mines, print

borders, sound, re-play game, wait for key press, and display results title screen.

6520-6560 Prepare to re-play game, or end if required.

7000-7020 Display results title screen.

8500 End program routine.

8700 Wait for key press.

9000 Display character number 170 at position PP. Flick between 170 and a blank space, with sound effects as well. Leave 170 on screen at end.

10000 GOSUB routine to re-play game. Display character CH at present player position then reset player position to start.

10010 Set loop to length of B\$. Make A\$=each character of B\$ in turn. Then GOSUB to 220, which will take A\$ to be a key input from line 215. It will then move the player's character on screen as in the original game at that time. Because the flag X9 is set, it will return at line 265. The program will then wait for a key press, print the number of moves, and continue the loop. Once the loop


```

10 SM=7680:CM=38400:IFPEEK(644)>32THENS=4096:CM=37888
20 DIMA(150):SO=36874
30 GOSUB7000:PRINT"X00STARTING LEVEL(1-6)"
40 INPUTL:IFL<10RL>6THEN30
50 PRINT"J":POKES0+4,15:C=0:RN=INT(RND(0)*20+23):B$="":X9=0
100 POKES0+5,26
110 GOSUB1000:GOSUB1200
150 PP=SM+495:PC=CM+495
160 POKEPP,218:POKEPC,0
200 PRINT"XXXXXXXXXXXXMOVES";C
205 GOSUB3000
210 M=0:POKE198,0
215 GETA$
220 IFAS$="U"THENM=-22
230 IFAS$="D"THENM=22
240 IFAS$="L"THENM=-1
250 IFAS$="R"THENM=1
252 IFM=0THEN215
255 IFPEEK(PP+M)=230THENGOSUB4000:GOTO210
257 LP=PP:PP=PP+M:PC=PC+M:C=C+1
260 IFPEEK(PP)=6THENGOTO5000
263 POKEPP,218:POKEPC,0:POKELP,160
265 IFX9=1THENRETURN
270 B$=B$+A$
280 FORT=1TOL#25:IFPP=SM+A(T)THENGOTO6000
290 NEXTT
320 GOTO200
999 END
1000 FORT=1TOL#25
1010 X=INT(RND(0)*462+22):IFX=4950RX=4730RX=4510RX=RN+22THEN1010
1020 A(T)=X:NEXTT
1030 RETURN
1200 FORT=0T021:POKESM+T+22,230:POKECM+T+22,5:POKESM+484+T,230:POKECM+T+484,5:NE
XTT
1210 FORT=22T0506STEP22:POKESM+T,230:POKECM+T,5:POKESM+T-1,230:POKECM+T-1,5:NEXT
1220 POKESM+RN,8:POKECM+RN,4:POKESM+495,160:POKECM+495,0:POKESM+473,160:POKECM+4
73,0
1230 POKESM+451,160:POKECM+451,0:RETURN
1500 FORT=100T0200:POKES0,T:POKES0+3,T:FORTT=1T05:NEXTTT,T
1510 FORT=200T0120STEP-1:POKES0,T:POKES0+3,T:POKES0+1,T-10:FORTT=1T010:NEXTTT,T
1515 POKES0+3,0:POKES0+1,0:POKES0,0
1520 RETURN
1700 FORT=219T0239:FORT2=1T05:POKES0+2,16+T-T2:NEXTT2,T
1710 FORT=239T0219STEP-1:FORT2=1T05:POKES0+2,16+T-T2:NEXTT2,T
1720 POKES0+2,0:RETURN
1800 FORT=1TOL#25:POKESM+A(T),42:POKECM+A(T),2:NEXTT:RETURN
1900 FORT=1T04:FORT2=1T020:POKES0,251-T2:NEXTT2,T:POKES0,0:RETURN
3000 M1=1:M2=1:M3=1:NM=0:M4=1
3005 PRINT"MAIRIT"
3010 FORT=1TOL#25
3020 IFM1=1THENIFSM+A(T)=PP-22THENM1=0:NM=NM+1
3030 IFM2=1THENIFSM+A(T)=PP-1THENM2=0:NM=NM+1
3040 IFM3=1THENIFSM+A(T)=PP+1THENM3=0:NM=NM+1
3045 IFM4=1THENIFSM+A(T)=PP+22THENM4=0:NM=NM+1
3050 NEXTT
3055 IFNM=0THENPRINT"SAFE":GOTO3070
3060 PRINT"NO,MINES";NM
3062 FORT=239T0210STEP-1:FORT2=1T05:POKES0+2,16+T-T2
3064 NEXTT2,T:POKES0+2,0
3070 RETURN
4000 POKES0+2,150:FORT=1T0100:NEXT:POKES0+2,100:FORT=1T0100:NEXT:POKES0+2,0:RETU
RN
5000 CH=136:PRINT"J":GOSUB1800:GOSUB1200:GOSUB1900:GOSUB10000:GOSUB8700:GOSUB700
0
5010 GOTO6520
6000 CH=170
6010 GOSUB1500:PRINT"J":GOSUB1800:GOSUB1200:GOSUB10000:GOSUB9000:GOSUB8700:GOSUB
7000
6520 PRINT"X00 HIT A KEY TO RE-PLAY"
6525 PRINT"X OR F3 TO RAISE LEVEL"
6530 PRINT"X00 OR F1 TO RESIGN NOW"
6535 GOSUB1700
6540 GETA$:IFAS$=" "THEN8500
6542 IFAS$<" "THEN6550
6544 IFL<6THENL=L+1:GOTO50
6546 PRINT"X00HIGHEST LEVEL REACHED":GOTO6540
6550 IFAS$=" "THEN6540
6560 GOTO50
7000 PRINT"JXXXXXXXXXXXXMINE-FIELD"
7010 PRINT"XXXXXXXXXXXXLEVEL";L
7020 PRINT"XXXXXXXXXXXXMOVES";C:RETURN
8500 POKES0+5,27:PRINT"J":END
8700 PRINT"X00 HIT ANY KEY":POKE198,0
8720 GETX$:IFX$=" "THEN8720
8730 RETURN
9000 FORT=1T05:POKEPP,32:POKES0+2,0:POKES0,120:FORTT=1T0150:NEXTTT
9010 POKES0,0:POKES0+2,200:POKEPP,170:FORTT=1T0150:NEXTTT,T
9020 POKES0,0:POKES0+2,0:RETURN
10000 POKEPP,CH:POKEPC,2:PP=SM+495:PC=CM+495:X9=1:C=0
10010 FORT=1TOLN(B$):A$=MID$(B$,T,1):GOSUB8700:GOSUB220:
10020 PRINT"XXXXXXXXXXXXMOVES";C:A$="":NEXTT:RETURN

```

NEXT MONTH...

In next month's fun issue of
Games Computing...

GO Bananas in Krazy Kong

Get your guns at the ready for an
Alien Showdown

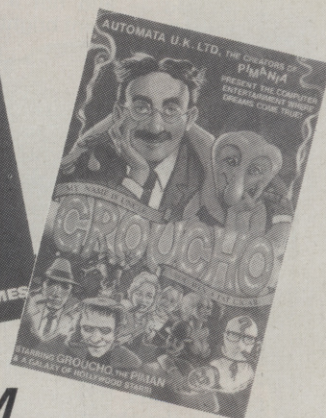
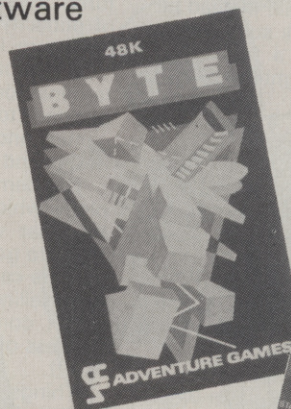
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PLUS news and reviews of the very
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GAMES COMPUTING

At the beginning of October a French exhibition was held which was supposed to herald the start of the home computer and video games front in Europe. Showing off their products were all the major video games firms like Atari, Mattel (with the Intellivision), CBS (with the Colecovision), Vectrex, and on the computer software side were the likes of Quicksilver, Dragon Data, Abbex Electronics, and Cable Software. Here's a report of the events.

Pele Foots the Press

Half way through the Cannes located show was one of the week's high spots. Former Brazilian world class soccer star Pele made a special guest appearance on the Atari stand in the exhibition hall and immediately the place was swamped with small boys tearing all over the place clad in bright football kits.

There was no stopping them! The kids were clambering on stands playing their favourite computer and video games, (joystick clutched in both hands and football under an arm) and when they weren't hogging all the games (and not just on the Atari stand either) the kids were generally causing havoc. Computer games fever

By Sue Denham

MIXING AT MIJID

certainly seems to have spread worldwide, even the smallest of kids were hooked on one game or another — and beating the adults hands down!

Pele was there primarily as a publicity stunt to attract not only the press photographers but also public and trade on to the Atari stand. Video games aficionados will already know that Pele has for some time given his name to promote Atari's soccer cartridge.

Seeing stars of any field is always exciting but I was hoping to see the great master of football to at least hold a football, if not kick it around a few times. I really did have to spot the ball! Instead he was wearing a plain old dark suit — very formal indeed — and not a football in sight. But still, the event brightened up an otherwise dull week.

Vectrex

Without exception the biggest stands went to the biggest exhibitors, but unfortunately there was precious little on them that was brand new to the public or trade.

Makers of the popular Vectrex games system came out tops in this respect with a brilliant invention in the form of the Vectrex 3D Imager. This is a specially designed pair of goggles which the player wears and must plug directly into the Vectrex console. This clever device truly transports the player into the realms of a three dimensional world.

The 3D Imager's special features (apart from the fact that it is 3D) is that you don't need a special adaptor to plug the game into the main game console in order to use the device, the Imager can be worn by anyone because the head strap is adjustable (even if you wear glasses you can use the Imager) and the goggles automatically adjust to the colours of the game being played.

At Mijid the Imager on show was only a prototype, but if that is anything to go by the final shop-shelf product will be mind-blowing! The effect on screen is remarkable and made the Vectrex games all the more addictive.

At present MB Electronics is planning to bring out three games for use with the Imager. These are Pole Position, Mine Storm and Narrow Escape. The game I played was Narrow Escape (I think — all the relevant literature was in French!). And it had me hooked and it took a very irate colleague to drag me away from the Vectrex stand.

Narrow Escape's object of play is to roam the galaxies and destroy an interstellar fortress belonging to an evil enemy people. You must wipe out the gigantic arms arsenal in order to free the galaxy's system. You operate a space craft and have to travel down the fortresses's corridors, being constantly on the alert for enemy laser gunfire, while firing your own ship's weapon's at the arsenal. And, for a change, it really is as exciting as it sounds. The Vectrex's linear screen graphics lend themselves ideally to 3D and the effect is very similar to graphics used in computer aided design.

Unfortunately, at present there is no set date for the UK release of the 3D Imager, the compatible cartridges nor has the sell-

ing price yet been fixed. Rumour at the show was that they would be available at some time during the first quarter of next year — once the final production version of the Imager is working to everybody's satisfaction.

Imagic

Having had a good run with several cartridges when this firm first set up a couple of years ago the magic is now fizzling out for the VCS side of Imagic.

This VCS games cartridge manufacturer came on to the scene with a splash of publicity and good packaging but the downturn in sales experienced by many VCS compatible manufacturers has had a terminal detrimental effect. Imagic has decided to stop producing their own games and will concentrate on games design and development instead.

The demise of Imagic stems from problems which took root at the beginning of the year when the firm abandoned its plans to go public, instead securing more venture capital in order to bring out more best selling games. But the best sellers didn't come and not one matched the success of Demon Attack (brought out in 1982).

Things were obviously not going very well and in an effort to save the business Imagic's men at the top opted to go into the computer software market which was slap bang in the middle of a boom. This year similar moves by rival VCS software makers have proved successful (Atari has always done so, Activision went into it in the summer and Parker has just announced new computer games titles). Even so, it didn't work for Imagic. Cash flow problems still carried on.

And as a result one firm roaming the video games jungle has fallen into a very large trap.

In Brief . . .

British software maker **Abbex Electronics** was in evidence at the show although they may be better known as 'Abbex the Games People'. I must admit that I had never heard of them but what I saw was a pleasant surprise. The Abbex lads specialise in writing games software for the Sinclair ZX Spectrum and have done so for over a year.

But recently the boys from Bedford, including one Gareth Levingston (sales director) have branched out into producing other popular micro computer software. Now their talents are used to write games for the Commodore 64, VIC 20, Oric 1 and Laser 200.

Abbex's games range from space games, to pacman versions, adventure, war games, strategy and arcade games. The firm's coup at Mijid was that they pulled off a deal to supply Dragon Data with a trial Abbex game with a view to marketing it for use with the Dragon computers (the 32K and 64K machines).

Atari's VCS cartridge E.T. sold in such low numbers in America that drastic action was taken. In the dead of night 14 trucks were loaded with the games, driven off in to the desert — and dumped. It is general knowledge that the video

games market has lurched into a decline in recent months and Atari's problem was that shops wouldn't stock further new games until old stocks had sold out.

But when Jim Levy, **Activision's** president was asked for his prediction on business and whether or not the slump would continue he said: 'There are two definite sections in the market, computer software and VCS software, which I feel will carry on selling well despite rumours to the contrary.'

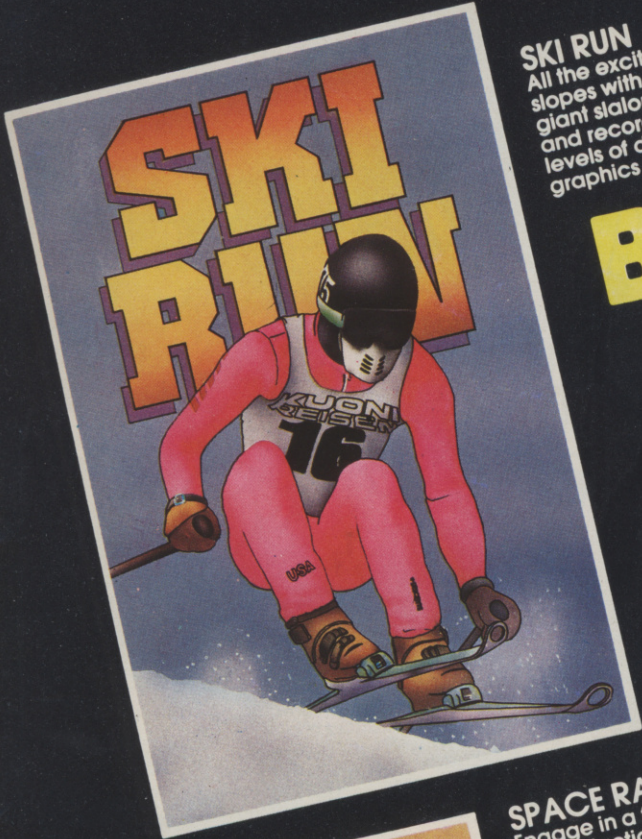
'We have just released games for the Atari 400 and will continue to do so in the future — it was always the plan to do so. We didn't do it because the VCS sales were dropping. Hardware sales are still good, as are software sales.'

In fact, Activision's whole operation has expanded so much that it has recently set up its own UK division to concentrate purely on marketing strategies. Until then, **CGL** one of Britain's largest electronic games distributors, was responsible for Activision's products in the UK.

CBS had a prototype of their forthcoming new home computer the Adam on show but the news is that the machine won't be on sale generally until some time in 1984. Production problems at the development meant that the Adam's launch date was put back indefinitely because CBS 'wanted to come out out with a product which is as near perfection as possible'. Let's hope that when the Adam finally joins the now enormous family of home micros it will be a worthy and lasting member.

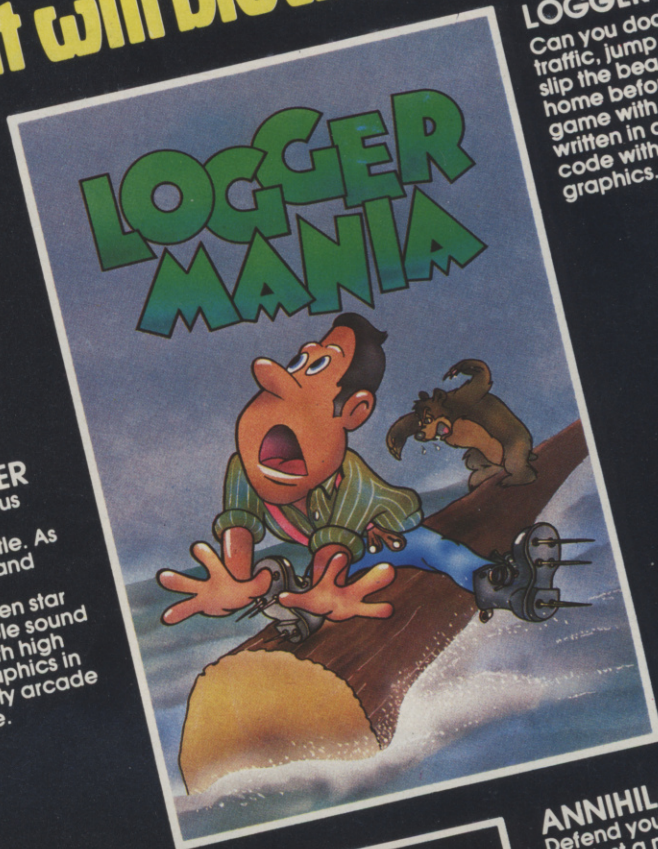
Last Words

Not even somebody with the wildest of imaginations could say that the first Mijid was a runaway success. Nevertheless a few snippets of interesting information were uncovered as reported here.

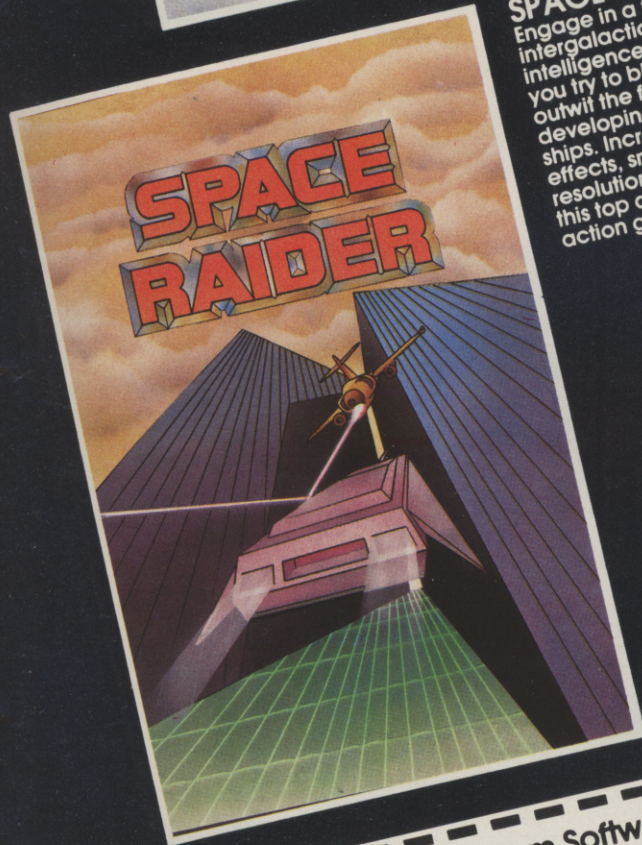


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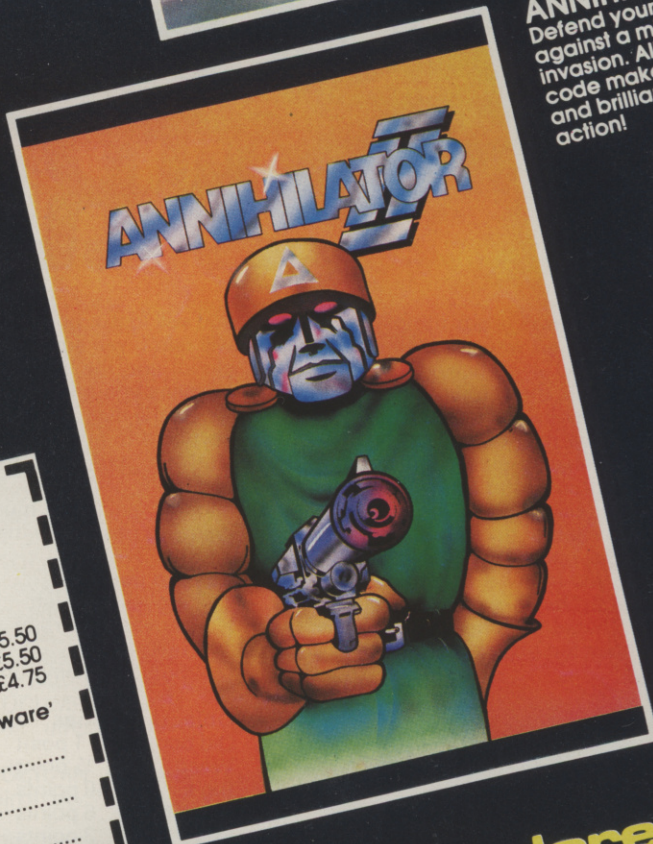
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By Jeremy Rickards

FISHERMAN FRED

Fishing Fred's way needs utmost cunning and speed if you want to haul in a huge catch during an illegal fishing trip.

Armed with three rods with which to catch the river-living victims Fred runs up and down the river bank in an attempt to reel in the objects pulling on the end of each line, (they're not always fish either). The key to reeling in a rod is to stand one space to the left of the rod rest.

Sounds simple? . . . You might think so but while you frantically try to reel in your rods Percy The Pike swims around the screen. Should he hit any of the objects on the lines the object will disappear and

you will lose a point. From time to time it will rain (cyan squiggles coming from the cloud) and the sun will go in. When this happens you must position Fred over the 'U' on the river bank, and press 'U' on the keyboard to put up your fishing umbrella. Until this task is completed you cannot reel in any of the rods. The game lasts two minutes and you must score as many points as possible in this time.

Keys to use

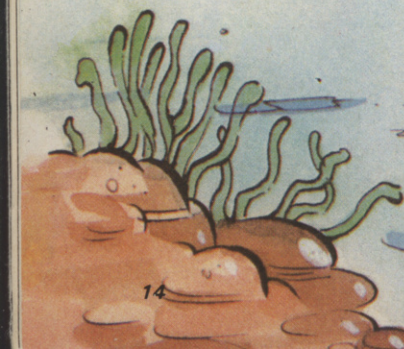
Z moves Fred left
X moves Fred right
? reels in line
U puts up fishing umbrella

Objects on Lines

Old boots 1 point
Weed ½ point
Big fish 10 points
Small fish 6 points
Eels 3 points

VARIABLE LIST

HS% High score value.
S% Present score value.
T% Time.
UMB% Random number between one and ten (defines whether it rains or not).
UMB\$ Whether it is raining or not.
U\$ Whether the umbrella is up or down.
G% Vertical position of object on left hand line.
H% Vertical position of object on middle line.



**RUNS ON
BBC/ELECTRON**



I%	Vertical position of object on right hand line.
PD%	Horizontal position of pike.
PL%	Vertical position of pike.
V%	FOR/NEXT loop variable.
M%	Determines whether Fred has his arms up or down.
X%	Horizontal position of man.
P%	Determines what is on the end of line 1.
Q%	Determines what is on the end of line 2.
R%	Determines what is on the end of line 3.
G\$	Searches for movement key to be pressed ie 'Z' or 'X' etc.
K%	Determines position of pike's tail.

RUNdown

Lines	Action
120-130	Set auto repeat delay.
140-180	Set initial variables and set graphics mode 5.
190-220	Reset logical graphical colours.
230-370	Define user defined characters for man, pike and objects.
380-400	A random number from 1 to 10 defining whether or not it will rain.

410-430	Initial variables for pike and object positions.
440	Sets background colour to blue and clears screen.
450-580	Draws initial graphical display.
590-910	MAIN PROGRAM LOOP.
920-1080	DEFPROCLEFT procedure to move man to the left.
1090-1250	DEFPROCRIGHT procedure to move man to the right.
1260-1360	DEFPROCREDRAW procedure to redraw lines deleted by man.
1370-1640	DEFPROCSETUP procedure to reprint characters in their new positions.
1650-1710	DEFPROCREELIN1 procedure to reel in left hand line.
1720-1780	DEFPROCREELIN2 procedure to reel in middle line.
1790-1850	DEFPROCREELIN3 procedure to reel in right hand line.
1860-2030	DEFPROCSCORE procedure to calculate new score.
2040-2120	DEFPROCSTART procedure to restart the game at end.
2130-2530	DEFPROCPIKEMOVE procedure to move pike across screen deleting characters which it hits.
2540-2580	DEFPROCDRAWUMB procedure to draw umbrella.
2590-2620	DEFPROCUMBUPORRD procedure if umbrella is up or down.
2630-2660	DEFPROCRAIN procedure to draw rain in sky.

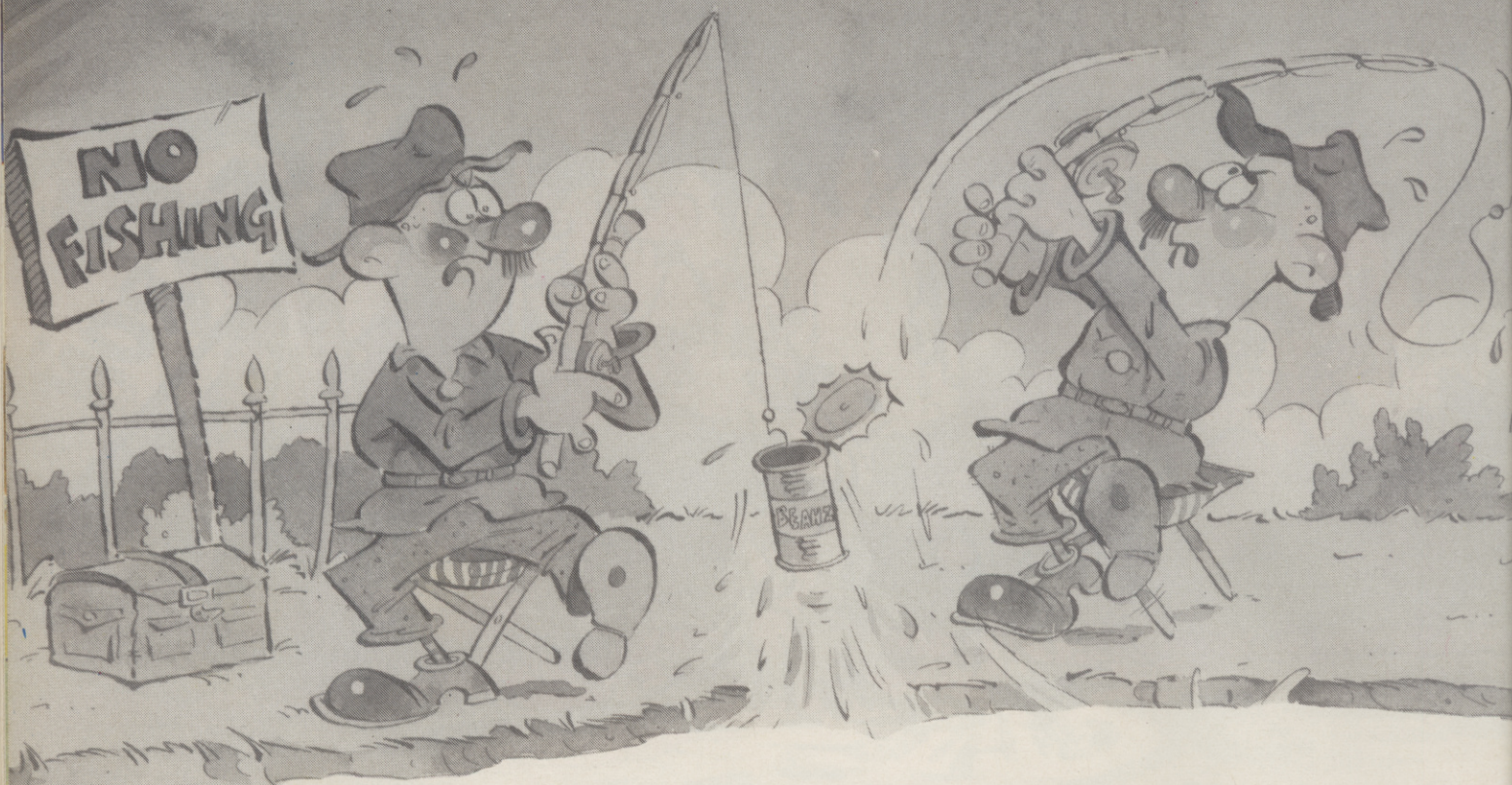
2670-2700 DEFPROCREDRAWLINE procedure to redraw fishing lines when they are deleted.

Conversion Clues

BBC Basic is fairly standard, however, it does permit the use of procedures and functions. These are defined using DEFPROC (procedure name), ended with ENDPROC and called using PROC (procedure name). Other BASICs may not have this facility, however, it should be relatively easy to replace these procedures using subroutines.

In the graphics mode 5 the BBC Micro's screen size is 20 characters by 32 rows and it may therefore be necessary on some computers to change a number of the PRINT statements.

The BBC Micro uses the SOUND and ENVELOPE commands to create sound effects and these will have to be omitted or replaced with the appropriate commands. One other command peculiar to the BBC Micro is the PRINT TAB command which serves the same purpose as the PRINT AT or PRINT @ commands on other computers.



```

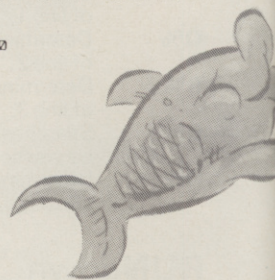
10 REM"
20 REM" FISHERMAN FRED"
30 REM"
40 REM" By J. Rickards."
50 REM"
60 REM" VERSION 4"
70 REM"
80 REM" 3rd AUGUST 83"
90 REM"
100 REM" Copyright (C)"
110 REM"
120 *FX 11,35
130 *FX 12,35
140 *KEY 10 OLD:MRIN:M
150 HS%=0:K%=1:M%=1
160 MODE 5
170 X%=10:S%=0
180 TX=TIME
190 VDU23,1,0,0,0,0
200 VDU 19,2,2,0,0,0
210 VDU 19,1,6,0,0,0
220 VDU 19,0,4,0,0,0
230 VDU 23,254,128,227,247,127,63,127,251,224
240 VDU 23,255,48,12,64,88,48,0,0,0
250 VDU23,241,24,60,60,24,126,255,189,153
260 VDU 23,238,153,189,189,153,255,126,126,24
270 VDU 23,239,24,60,60,36,36,36,36,102
280 VDU23,242,153,189,60,126,102,66,66,195
290 VDU23,240,252,244,124,40,112,118,255,207
300 VDU23,243,40,124,246,254,124,56,124,238
310 VDU23,250,128,224,252,239,248,255,254,192
320 VDU23,251,15,159,255,255,255,255,255
330 VDU23,252,0,195,247,127,63,127,243,192
340 VDU23,244,56,120,184,86,101,181,73,82
350 VDU23,245,131,101,23,102,140,184,96,0
360 VDU23,246,36,110,114,243,255,255,255,255
370 VDU23,247,255,255,126,60,24,60,126,231
380 UMB%=RND(10)
390 IF UMB%<4 THEN UMB%="UP" ELSE UMB%="DOWN"
400 REM
410 U%="DOWN"
420 GX=17:HY=22:IX=12:FX=0:PLX=RND(23)
430 IF PLX<11 THEN PLX=12
440 GCOLOR,132:CLG
450 MOVE0,735:GCOLOR,2:DRAW1280,735
460 FOR VX=1TO25:MOVE0,735-VX:GCOLOR,2:DRAW1280,735-VX:NEXT
470 MOVE0,202:GCOLOR,0:DRAW1280,202
480 FOR VX=1TO15:GCOLOR,3:MOVE0,202+VX:DRAW 1280,202+VX:NEXT
490 IF UMB%="UP" GOTO 510
500 GCOLOR,3:MOVE0,940:DRAW20,940:DRAW40,950:DRAW50,960:DRAW60,98
0:DRAW60,1000:DRAW50,1020:MOVE10,920:DRAW10,860:MOVE80,990:DRAW140
,990:MOVE60,940:DRAW100,900
510 GCOLOR,3:MOVE400,1020:DRAW420,980:DRAW440,960:DRAW460,950:DRA
W480,925:DRAW500,975:DRAW520,960:DRAW560,920:DRAW580,910:DRAW600,9
10:DRAW660,940:DRAW670,960:DRAW680,980:DRAW700,980:DRAW720,990:DRA
W740,1020
520 GCOLOR,7:MOVE200,708:DRAW200,760:DRAW220,780:MOVE180,780:DRAW
200,760
530 GCOLOR,7:MOVE1080,708:DRAW1080,760:DRAW1100,780:MOVE1060,780:
DRAW1080,760
540 GCOLOR,7:MOVE640,708:DRAW640,760:DRAW660,780:MOVE620,780:DRAW
640,760
550 GCOLOR,2:MOVE120,740:DRAW340,800:MOVE560,740:DRAW800,800:MOVE
1000,740:DRAW1240,800
560 GCOLOR,1:DRAW1240,640:MOVE800,800:DRAW800,300:MOVE340,800:DRA
W340,480
570 MOVE400,740:GCOLOR,3:DRAW440,780:MOVE440,740:DRAW400,780:GCOL
0,1:DRAW420,773:DRAW440,780
580 COLOUR3:PRINTAB(8,9);"U"
590 IF M%=2 GOTO 630
600 PRINTAB(X%,7);CHR$(241)

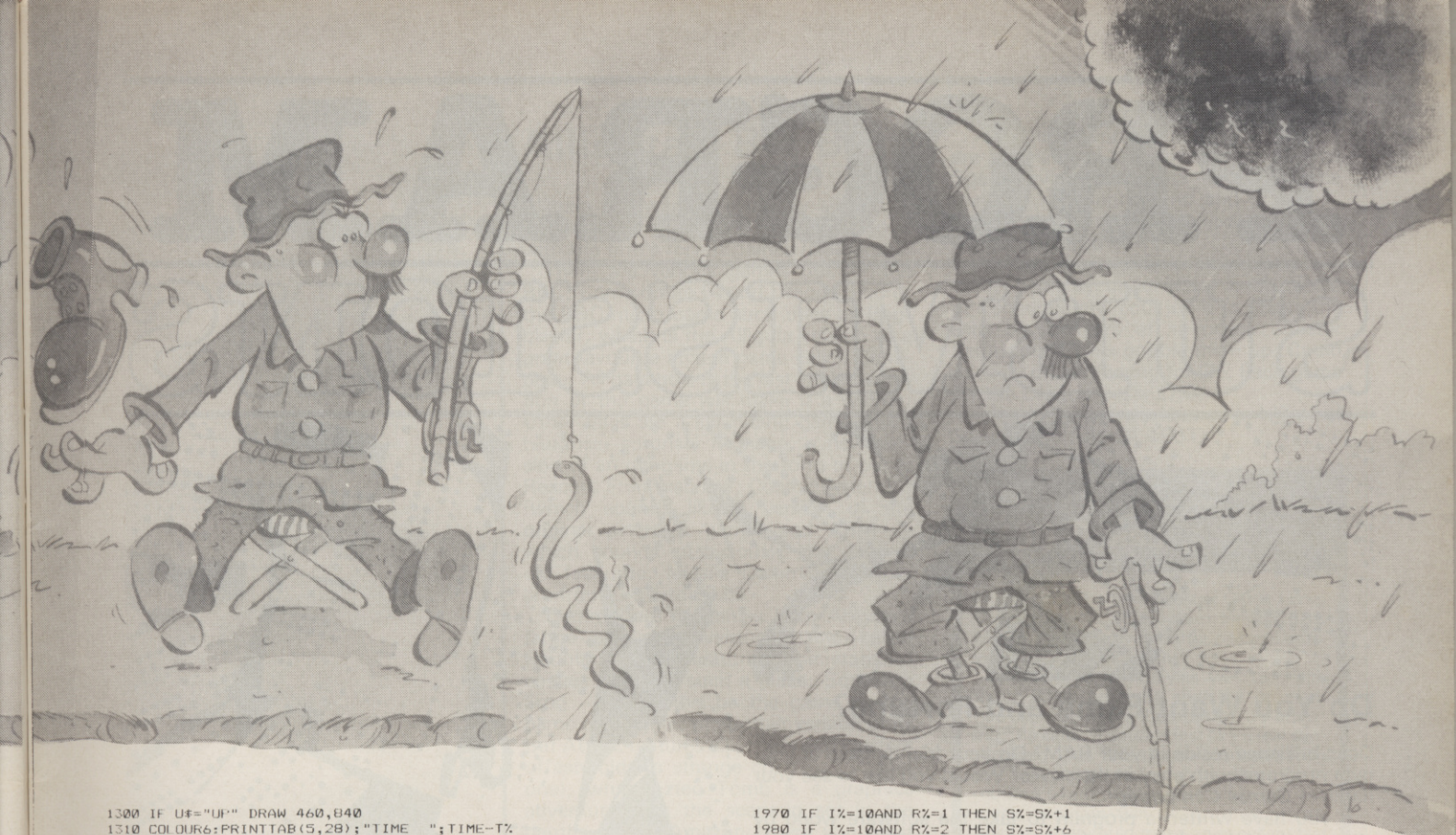
```

```

610 PRINTAB(X%,8);CHR$(242)
620 M%=2:GOTO 660
630 PRINTAB(X%,7);CHR$(238)
640 PRINTAB(X%,8);CHR$(239)
650 M%=1
660 COLOUR6:PRINTAB(5,26);"SCORE ";S%
670 P%=RND(6):O%=RND(6):R%=RND(6)
680 COLOUR6:PRINTAB(5,27);"HIGH ";HS%
690 COLOUR6:PRINTAB(5,28);"TIME ";TIME-T%
700 IF TIME-T%>12000 PROCRESTART
710 PROCPIKEMOVE
720 PROCSETUP
730 COLOUR6:PRINTAB(5,28);"TIME ";TIME-T%
740 G%="INKEY$(5)
750 IF UMB%="UP" PROCRAIN
760 PROCPIKEMOVE
770 IF G%="Z" THEN PROCLEFT
780 IF G%="X" THEN PROCRIGHT
790 IF X%=8 AND UMB%="UP" AND G%="U" THEN PROCDRAWUMB
800 IF X%=8 AND UMB%="DOWN" AND G%="U" AND U%="DOWN" GOTO 830
810 IF X%=8 AND UMB%="DOWN" AND G%="U" AND U%="UP" PROCUMBUPFORD
820 GOTO 840
830 IF X%=8 AND UMB%="DOWN" AND G%="U" AND U%="DOWN" PROCUMBUPFOR
D
840 IF UMB%="UP" AND U%="UP" GOTO 870
850 IF UMB%="DOWN" AND U%="UP" THEN GOTO 910
860 IF UMB%="UP" AND U%="DOWN" GOTO 910
870 IF UMB%="UP" AND U%="UP" GOTO 880
880 IF G%="/" AND X%=2 THEN PROCREELIN1
890 IF G%="/" AND X%=9 THEN PROCREELIN2
900 IF G%="/" AND X%=16 THEN PROCREELIN3
910 GOTO 730
920 DEFPROCLEFT
930 X%=X%-1
940 IF X%<0 THEN X%=0
950 COLOUR3
960 IF M%=2 GOTO 1000
970 PRINTAB(X%,7);CHR$(241)
980 PRINTAB(X%,8);CHR$(242)
990 M%=2:GOTO 1030
1000 PRINTAB(X%,7);CHR$(238)
1010 PRINTAB(X%,8);CHR$(239)
1020 M%=1
1030 PRINTAB(X%+1,7);CHR$(32)
1040 PRINTAB(X%+1,8);CHR$(32)
1050 SOUND1,-15,101,1
1060 PROCREDRAW
1070 PROCREDRAWLINE
1080 ENDPROC
1090 DEFPROCRIGHT
1100 X%=X%+1
1110 IF X%>19 THEN X%=19
1120 COLOUR3
1130 IF M%=2 GOTO 1170
1140 PRINTAB(X%,7);CHR$(241)
1150 PRINTAB(X%,8);CHR$(242)
1160 M%=2:GOTO 1200
1170 PRINTAB(X%,7);CHR$(238)
1180 PRINTAB(X%,8);CHR$(239)
1190 M%=1
1200 PRINTAB(X%-1,7);CHR$(32)
1210 PRINTAB(X%-1,8);CHR$(32)
1220 SOUND1,-15,88,1
1230 PROCREDRAW
1240 PROCREDRAWLINE
1250 ENDPROC
1260 DEFPROCREDRAW
1270 MOVE400,740:GCOLOR,3:DRAW440,780:MOVE440,740:DRAW400,780:GCOL
0,1:DRAW420,773:DRAW440,780
1280 GCOLOR,3
1290 IF U%="UP" MOVE 460,740

```





```

1300 IF U$="UP" DRAW 460,840
1310 COLOUR6:PRINTTAB(5,28);"TIME ";TIME-TX
1320 GCOL 0,7:MOVE 200,700:DRAW 200,760:DRAW 220,780:MOVE 180,780
:DRAW 200,760
1330 GCOL 0,7:MOVE 1080,700:DRAW 1080,760:DRAW 1100,780:MOVE 1060
,780:DRAW 1080,760
1340 GCOL 0,7:MOVE 640,700:DRAW 640,760:DRAW 660,780:MOVE 620,780
:DRAW 640,760
1350 GCOL 0,2:MOVE 120,740:DRAW 340,800:MOVE 560,740:DRAW 800,800
:MOVE 1000,740:DRAW 1240,800
1360 ENDPROC
1370 DEFPROCSETUP
1380 COLOUR6:PRINTTAB(5,28);"TIME ";TIME-TX
1390 COLOUR2
1400 PRINTTAB(PD%,PL%);CHR$(252);CHR$(251);CHR$(250)
1410 COLOUR 3
1420 IF P%=1 PRINTTAB(5,G%);CHR$(240)
1430 IF P%=2 PRINTTAB(5,G%);CHR$(243)
1440 IF P%=3 PRINTTAB(5,G%);CHR$(244)
1450 IF P%=4 PRINTTAB(5,G%);CHR$(245)
1460 IF O%=1 PRINTTAB(12,H%);CHR$(240)
1470 IF O%=2 PRINTTAB(12,H%);CHR$(243)
1480 IF O%=3 PRINTTAB(12,H%);CHR$(244)
1490 IF O%=4 PRINTTAB(12,H%);CHR$(245)
1500 IF R%=1 PRINTTAB(19,I%);CHR$(240)
1510 IF R%=2 PRINTTAB(19,I%);CHR$(243)
1520 IF R%=3 PRINTTAB(19,I%);CHR$(244)
1530 IF R%=4 PRINTTAB(19,I%);CHR$(245)
1540 IF P%=6 THEN PRINTTAB(5,G%);CHR$(246)
1550 IF P%=6 THEN PRINTTAB(5,G%+1);CHR$(247)
1560 COLOUR 2
1570 IF O%=5 PRINTTAB(12,H%);CHR$(255)
1580 IF R%=5 PRINTTAB(19,I%);CHR$(255)
1590 IF P%=5 PRINTTAB(5,G%);CHR$(255)
1600 IF O%=6 THEN PRINTTAB(12,H%);CHR$(246)
1610 IF O%=6 THEN PRINTTAB(12,H%+1);CHR$(247)
1620 IF R%=6 THEN PRINTTAB(19,I%);CHR$(246)
1630 IF R%=6 THEN PRINTTAB(19,I%+1);CHR$(247)
1640 ENDPROC
1650 DEFPROCREELIN1
1660 G%=G%-1
1670 PROCSETUP
1680 IF P%=6 THEN PRINTTAB(5,G%+2);" ":GOTO 1700
1690 PRINTTAB(5,G%+1);" "
1700 IF G%=10 PROCSCORE
1710 ENDPROC
1720 DEFPROCREELIN2
1730 H%=H%-1
1740 PROCSETUP
1750 IF O%=6 THEN PRINTTAB(12,H%+2);" ":GOTO 1770
1760 PRINTTAB(12,H%+1);" "
1770 IF H%=10 PROCSCORE
1780 ENDPROC
1790 DEFPROCREELIN3
1800 I%=I%-1
1810 PROCSETUP
1820 IF R%=6 THEN PRINTTAB(19,I%+2);" ":GOTO 1840
1830 PRINTTAB(19,I%+1);" "
1840 IF I%=10 PROCSCORE
1850 ENDPROC
1860 DEFPROCSCORE
1870 IF G%=10AND P%=1 THEN S%=S%+1
1880 IF G%=10AND P%=2 THEN S%=S%+6
1890 IF G%=10AND P%=3 THEN S%=S%+0.5
1900 IF G%=10AND P%=4 THEN S%=S%+3
1910 IF G%=10AND P%=6 THEN S%=S%+12
1920 IF H%=10AND O%=1 THEN S%=S%+1
1930 IF H%=10AND O%=2 THEN S%=S%+6
1940 IF H%=10AND O%=3 THEN S%=S%+0.5
1950 IF H%=10AND O%=4 THEN S%=S%+3
1960 IF H%=10AND O%=6 THEN S%=S%+10

```

```

1970 IF I%=10AND R%=1 THEN S%=S%+1
1980 IF I%=10AND R%=2 THEN S%=S%+6
1990 IF I%=10AND R%=3 THEN S%=S%+0.5
2000 IF I%=10AND R%=4 THEN S%=S%+3
2010 IF I%=10AND R%=6 THEN S%=S%+12
2020 GOTO 380
2030 ENDPROC
2040 DEFPROCRESTART
2050 PRINTTAB(2,30);CHR$(136);"NEW GAME? (Y/N) "
2060 IF S%>HS% THEN HS%=S%
2070 COLOUR 6:PRINTTAB(5,27);"HIGH ";HS%
2080 REPEAT:G$=GET$:UNTIL G$="Y"OR G$="N"
2090 IF G$="Y" THEN GOTO 170
2100 IF G$="N" THEN *FX 12,0
2110 IF G$="N" THEN END
2120 ENDPROC
2230 IF PD%=3 AND PL%=G% THEN S%=S%-1
2240 IF PD%=3 AND PL%=G% THEN SOUND 1,-15,5,1
2250 IF PD%=12 AND PL%=H% THEN O%=5
2260 IF PD%=12 AND PL%=H% THEN S%=S%-1
2270 IF PD%=12 AND PL%=H% THEN SOUND 1,-15,5,1
2280 IF PD%=11 AND PL%=H% THEN O%=5
2290 IF PD%=11 AND PL%=H% THEN S%=S%-1
2300 IF PD%=11 AND PL%=H% THEN SOUND 1,-15,5,1
2310 IF PD%=10 AND PL%=H% THEN O%=5
2320 IF PD%=10 AND PL%=H% THEN S%=S%-1
2330 IF PD%=10 AND PL%=H% THEN SOUND 1,-15,5,1
2340 IF PD%=19 AND PL%=I% THEN R%=5
2350 IF PD%=19 AND PL%=I% THEN S%=S%-1
2360 IF PD%=19 AND PL%=I% THEN SOUND 1,-15,5,1
2370 IF PD%=18 AND PL%=I% THEN R%=5
2380 IF PD%=18 AND PL%=I% THEN S%=S%-1
2390 IF PD%=18 AND PL%=I% THEN SOUND 1,-15,5,1
2400 IF PD%=17 AND PL%=I% THEN R%=5
2410 IF PD%=17 AND PL%=I% THEN S%=S%-1
2420 IF PD%=18 THEN PRINTTAB(PD%-1,PL%);" "
2430 SOUND 1,-5,1,1:SOUND 1,-5,4,1
2440 IF PD%=18 THEN PD%=0
2450 IF K%=2 GOTO 2490
2460 PRINTTAB(PD%,PL%);CHR$(252);CHR$(251);CHR$(250)
2470 K%=2
2480 GOTO 2510
2490 PRINTTAB(PD%,PL%);CHR$(254);CHR$(251);CHR$(250)
2500 K%=1
2510 PRINTTAB(PD%-1,PL%);" "
2520 IF PD%=5 OR 12 OR 19 PROCREDRAWLINE
2530 ENDPROC
2540 DEFPROCDRAWUMB
2550 GCOL 0,3:MOVE 460,740:DRAW 460,840:GCOL 0,2:MOVE 560,840:DR
AW 380,840:DRAW 400,880:DRAW 460,900:DRAW 520,880:DRAW 560,840:MOV
E 510,840:DRAW 460,900:MOVE 460,840:DRAW 460,900:MOVE 410,840:DRAW
460,900
2560 UMB$="UP"
2570 U$="UP"
2580 ENDPROC
2590 DEFPROCUMBUPORD
2600 IF U$="UP"PROCUMBDOWN
2610 IF U$="DOWN"PROCDRAWUMB
2620 ENDPROC
2630 DEFPROCRAIN
2640 GCOL0,1
2650 MOVE 540,900:DRAW 560,860:MOVE 580,880:DRAW 600,840:MOVE 62
0,900:DRAW 640,860:MOVE 660,880:DRAW 680,840:MOVE 680,920:DRAW 700
,880:MOVE 700,960:DRAW 720,920:MOVE 700,860:DRAW 720,820:MOVE 740,
960:DRAW 760,920:MOVE 740,900:DRAW 760,860
2660 ENDPROC
2670 DEFPROCREDRAWLINE
2680 GCOL 0,1
2690 MOVE 340,800:DRAW 340,37*(30-G%):MOVE 1240,800:DRAW 1240,37
*(30-I%):MOVE 800,800:DRAW 800,37*(30-H%)
2700 ENDPROC

```


PROGRAM SUBMISSIONS



Do You Want Fame and Fortune?

Does brilliance reside in your RAM? Do your friends gasp at your own programs with envy in their eyes? Would you like to see your name in *Games Computing*!

If you have written a program to take the software world by storm and want to show your fellow readers just what you can do on a keyboard, cut out or photocopy the form below and send it to the Editor, Games Computing, (clearly marked PROGRAM SUBMISSIONS) at 145 Charing Cross Road, London WC2H 0EE (until 16 December 1983) and after that to 1 Golden Square, London W1.

Please send with your tape recording of the program a thorough explanation of the game, a line by line listing of how the program works along with a list of relevant variables etc. Also include any clues which you can think of to help owners of other computers other than the one which the program was written for, convert it for use on their computer.

We will look at games programs on tape for all the popular home micros and disc versions for the Commodore machines, Atari and BBC (40 track and Hitachi format). Whenever possible use CHR\$ rather than command codes and please avoid making programs autorun. If you can let us have a printout of the program it helps and the same goes for screen dumps.

P.S. They'll be paid for too!

★ PLEASE COMPLETE IN BLOCK CAPITALS

Your Name	Age
Program Name	
Computer/memory size it runs on	
Amount of memory program occupies	
Other computers/memory size which your program runs on	
Does your game need joysticks?	Yes No
Any known bugs? If so, what are they?	
Have you sent your game to another magazine	Yes No
Is it original/or a variation on a theme?	
Your Address	
Telephone Number	
Times to contact you	

SWITCH

Alligata's Big Byte

Alligata Software is evidently aiming to bite a chunk out of the software market with the firm's recent games releases.

There are various games out for the BBC, Commodore 64 and Dragon 32. For the BBC micro come such titles as Bug-blasters, which is the Alligata version of a great favourite arcade game called Centipede. Alligata boasts the fast implementation of the game will make it a winner. Other titles are a car racing game called (surprise, surprise) Monaco, a new version of an old game in the form of Lunar Rescue, Fruit machine, Cosmic Asteroids (which sounds like a version of the original asteroids game) and ABM — which sounds suspiciously like another old favourite, Missile Command. Prices are from £5.95 to £7.95.

Commodore 64 games from Alligata's range are an adventure game called Haunted House featuring the standard nasties found in such a place. Squash a Frog — could this be the game by the name of Frogger, or another version of it? Bat Attack features killer bats and clusters of asteroids (a strange combination that one), while Aztec Tomb is a graphics adventure with the scenario set in the depths of the Amazon where you must find the lost Aztec tomb. Other titles are Balloon Rescue, Damsel in Distress and Brands. Again prices vary from £5.95 to £7.95.

And the offerings for Dragon owners are a version of the classic arcade game Space Invaders. Alligata says the game features 'excellent sound and graphics'. The other game just released for the Dragon is called Jaws.

At least the theme is different in this game, being set under water in the middle of a shark patch. Your job is to search the seas of survivors of an ocean disaster before the sharks gobble them up. Could put you off swimming for life. Each game for the Dragon costs £7.95.

Alligata Software is located at 178 West Street, Sheffield S1 4EGT.

Stop Press . . .

Following hot on the heels of Game Lords Quicksilva's music program for the BBC Micro comes an even better piece of software with a musical vent.

Quicksilva's Mark Eyles was over the moon when he heard that the program had been given the thumbs up. 'It's amazing,' he said, 'it sounds just like a real synthesiser.' The firm is now concentrating on producing as much quality Commodore 64 software as possible and the music program will be on streets very quickly, so it could make an excellent last minute Christmas present for somebody you know — or maybe yourself. Watch out for it in your local software shops.



Annihilator Coming Soon

US Chart topper Annihilator is soon to be on sale in the UK for VIC 20 and CMB 64 computer owners.

Mogul 'The new force in computer software' are planning to rush-release this great game, presumably just in time to

make the most of the Christmas market, having just acquired the UK, European and Scandinavian marketing rights to the game. At present the game is sitting prettily near the top of the *Computer Gazette* Top 10 in America and looks like zipping to be a top seller in England. Mogul plans to put a price tag of £5.99 on Annihilator and the firm intimates that it will be available on other computers in the course of time.

Annihilator is an arcade style game revolving round invading aliens but it's NOT Space Invaders. The action apparently is fast and furious and the game is written entirely in machine code in order to achieve this high speed action. Watch out for a review of Annihilator in a future issue of *Games Computing*.

Commodore 64s to Win

If you can't afford to buy your own Commodore 64 computer but like the look of it Galactic Software have dreamed up a way to give you one.

All you need to make all your Christmasses come at once is to buy one of the firm's games before December 25. Galactic Software's brain bogglers have made their computer churn up a list of 120 numbers which will be selected at random by the machine. When you buy one of Galactic's games all you need to do is send in a section of the inlay card with your guessed number written on it. And the 20 people who either guess correctly to match up with the computer's list, or are closest, will each win a Commodore 64 computer. There are also 100 runners up who will receive a great games control joystick. That's surely worth the cost of one of Galactic's games?

And while we're on the subject of Galactic the firm has news of a new software pack called Games Designer. It sounds similar to the pack brought out by Quicksilver in which you can put user defined characters into your own programs at the touch of a fingertip without any extra effort from you. Things like



monsters, asteroids, moonscapes, spaceships, aliens, and kangaroos can all be picked for your own use. It's an excellent way to learn about programming too, apart from just being fun to use. Games Designer is available for the VIC 20

for £9.50 and Commodore 64 for £11.50. One not to be missed.

Galactic Software can be contacted at Unit 7, Larchfield Estate, Dowlish Ford, Ilminster, Somerset TA19 0PF or telephone them on 04605 5161.

Roll Up, Roll Up

If you want to buy a computer or some new software for your present machine make the most of a 'try and buy' show to be held in London in early January.

Run by Argus Specialist Exhibitions the London Home Computer Show will be open from Friday January 6 to Sunday January 8 1984. If you're under sixteen you get a special bonus in the shape of a cut-price entrance ticket of £1.50 instead of £2.00, so you'll be able to afford that piece of software you have been hankering after for weeks with those saved pennies.

Last year the London Home Computer Show pulled in the crowds so that this year's event has to be held in a larger hall.

Names of firms exhibiting at the show are not yet definite, but if last year is anything to go by many of the household software makers

Not only will you be able to try out software on show by exhibitors you will also have the chance to look at hardware and add-ons and take goodies away from the stands, once you've bought them of course.

At present its early days for the exhibition but firms who have so far booked stands include Buffer Micro, Shard Software, Computersolve, Mikrogen, Compu-sound, Saxxon Computing and Computer Lock. No doubt many more will follow.

If you fancy trotting down to the show to spend a few quid you'll find the exhibition at the New Hall, Royal Horticultural Society just behind Victoria Street in Westminster.

New Generation in Genon

3D games are up and coming in software circles these days and New Generation has come up with a goody in this field.

Called Corridors of Genon this 3D game doesn't mean you have to don a silly pair of cardboard goggles with coloured lenses. It's a graphical adventure game. You have to locate and destroy the computer which has been programmed to wipe out the world (universe included) and is located in the very heart of the Corridors of Genon. There are 30 circular corridors in total which lead to the centre and you must pass through various doors on your way. It sounds very confusing. Some of them you can open and some of them you can't — only by trial and error will you find out which door codes can be broken. There's also a nasty guardian of the corridors to contend with whenever he rears his ugly head. He's called Bogul and has the power, unfortunately for you, to discover your whereabouts and 'Bogulise' you. It all sounds very nasty indeed.

To destroy the computer you must crack a special three digit code, but this you must do within a time limit. The longer you take the more times Bogul will produce clones of himself! And even when you wipe out the computer you're still in danger of dying. For you must escape the corridors and avoid the clones of Bogul — if you don't you're dead.

Corridors of Genon runs on the 48K Spectrum and comes with a keyboard overlay card for you to play the game more easily. If you don't fancy using key controls you can also plug a joystick in and use that. The price is £5.95 and is available from software retailers or New Generation themselves.

Ostriches and Eggs from Rabbit

Somebody at Rabbit Software has been working overtime on the new games currently landing with a thump on shop shelves.

Amongst the new games is one called Lancer Lords. Now this title is a little misleading — it conjours up visions of medieval knights jousting on horseback. But its not. The knights are there all right, but ostriches take the place of the more conventional horse! Sounds crazy but makes for an interesting theme for a game. It all involves lances and eggs which both the player and the enemy seem to have. If you hit any of these your knight is instantly transformed into a rusty heap of tin. Can't wait to review this one.

Paratroopers is another new release from Rabbit which is an arcade style game incorporating invading helicopters and paratroopers which are out to get you and your command post, preferably for good.

In Rabbit's words if you lose you get 'a ticket to watch Gateshead' — surely a fate worse than death and definitely something at the back of your mind to keep you on a winning streak.

Potty Painter's title gives nothing of the game away. It's a continuing saga of a game played out in a jungle scenario and is apparently 'more than a bit potty,' with natives brandishing assigi and the terrifying Teddy Twins who try to paint you off the screen!

Rabbit's games are now on sale in branches of Boots, W H Smith and Rumbelows. Prices for the games are £00.00.



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From Machine Code Arcade Action through Graphical Adventure to Mind Bending Board Games - WE'VE GOT THE LOT!

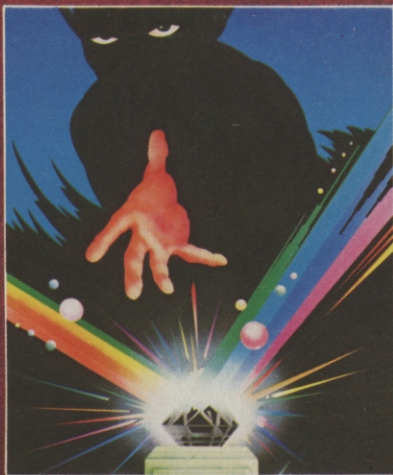
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MORE THAN JUST A GAME...

JUST AROUND THE CORNER, A NEW



BLACK CRYSTAL

The Classic, six program adventure game for the 48K Spectrum and 16K ZX-81 computers. No software collection is complete without it.

"BLACK CRYSTAL is an excellent graphics adventure and a well thought out package" (Sinclair User, April '83).

"BLACK CRYSTAL has impressed me by its sheer quantity and generally high quality of presentation. I am afraid I have become an addict" (Home Computing Weekly, April '83).

SPECTRUM 48K 180K of program in six parts . . . only £7.50

ZX-81 16K over 100K of program in seven parts . . . only £7.50

Why pay more for less of an adventure?



THE ADVENTURES OF ST. BERNARD

An exciting, fast moving, machine code, arcade game where you guide your intrepid St. Bernard through the perils of the icy wastelands to rescue his Mistress from the clutches of the abominable snowman. 48K Spectrum £5.95.



THE CRYPT

written by Stephen Renton

Prepare yourself for the many challenges that shall confront you when you dare to enter "THE CRYPT".

You will battle with giant scorpions, Hell spawn, Craners, Pos-Negs and if you are unlucky enough — the Dark Cyclops in this arcade style adventure.

Available now for the 48K Spectrum @ £4.95



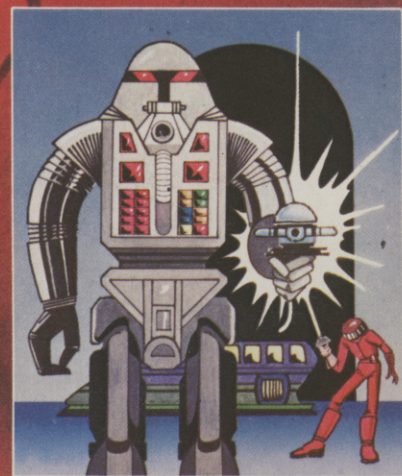
ZX-81 COMPENDIUM

Alien Intruder, Wumpus Adventure, Numerology, Hangman, Hieroglyphics, Movie Mogul.

The ideal software package for all 16K ZX-81 owners. Six major programmes on two cassettes for only £6.50.

"Alien Intruder/Hieroglyphics — Both programs make good use of graphics and words to make a very entertaining package." (Sinclair User, Aug '82)

"Alien/Hieroglyphics/Wumpus/Movie — A varied mix from Carnell, all featuring imaginative responses and graphics and all of them good games for all ages (Hieroglyphics is particularly good for children)." (Popular Computing Weekly, Aug '82)



STARFORCE ONE

Take on the robot guardians of the central computer in a superbly stylised three dimensional battle game. 48K Spectrum £5.95.

(100% MACHINE CODE ARCADE ACTION)



THE DEVIL RIDES IN

I uttered the last incantations as the clock struck thirteen. All fell silent except for a faint rustling in the corner. From out of the shadows they came, all Hell's fury against me but I was not defenceless until the Angel Of Death, astride a winged horse, joined the battle. Avoiding his bolts of hell fire, I took careful aim. My chances were slim, but if my luck held . . . 48K Spectrum £5.95.

(Fast moving, machine code, all action, Arcade game)

RANGE FROM CARNELL SOFTWARE



COMING SOON

"THE WRATH OF MAGRA"

The first born has been destroyed. The Black Crystal of Beroth has been banished. The alliance of Evil has been defeated by the armies of Lord Fendal. So ends the Third Age. Now we invite you to write your name in the history of the Fourth Age of the Third Continent.

You will meet friends and enemies, old and new, in the long awaited sequel to Volcanic Dungeon. Using high resolution graphics and combining the best qualities of "Black Crystal" and "Volcanic Dungeon", we will allow you to become part of this tale of revenge.

"The Wrath Of Magra" comes as three, 48K programs on cassette, boxed with instruction manual and book detailing the history of the Third Continent and the many spells you will be using throughout the game.

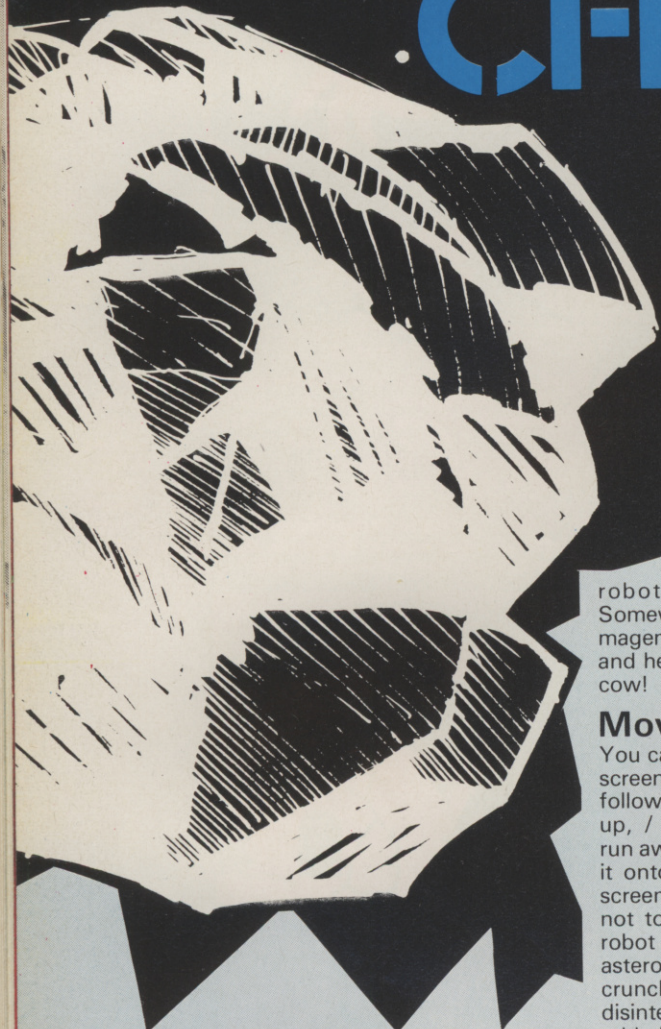
NOTE: "The Wrath Of Magra" is a complete adventure. You need not buy "Volcanic Dungeon" or "Black Crystal" to play it.

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CARNELL SOFTWARE LTD

ASTEROID CHASE



robot ship under your control. Somewhere else on the screen is a magenta coloured 'round thing', with legs and head sticking out — this is the space cow!

Moving the Ship

You can move your robot ship around the screen by using a joystick or by using the following keys: Z — left, X — right, : — up, / down. The cow will always try to run away from you, but you have to chase it onto the teleport in the centre of the screen in the shortest possible time. Try not to hit too many asteroids with your robot ship or drive the poor cow into the asteroids. If you do, you hear a nasty crunching, scraping sound as the asteroid disintegrates. You then get penalty points added to your elapsed time.

Try to get as many cows onto the teleport as quickly as possible. When a cow moves onto the teleport, the teleport flashes madly and emits an amazing sound effect as the cow vanishes. You are also given your score for that cow at the bottom of the screen. Then, with a bleep, a new cow appears for you to chase. The game becomes progressively faster. At top speed it can be a hair-raising experience. The game ends of either you crash onto the teleport yourself or you crash your robot ship into the cow. There is a colourful, noisy explosion and the game finishes.

If you have scored among the top nine players, you will be told your position and asked for your name. Finally you are presented with the 'Hall Of Fame' which lists the top nine scores and the players who achieved them, ranked in order. Press any key to play again, if you can stand the frustration.

Variables Used

ASTPOS%(19, 1) Co-ordinates of asteroids (graphics absolute).
COWPOS%(1) Co-ordinates of space cow (text absolute).
SBOTPOS%(1) Co-ordinates of robot ship (text absolute).

SCORE%(8) Top nine scores.
NAME\$(8) Top scorers' names.
JPOS0%, JPOS1% Joystick positions.
TP0%, TP1%, TP2%, TP3% Boundaries of teleport region (graphics absolute).
SID0%, SID1%, SID2%, SID3% Boundaries of playing area (graphics absolute).
A% Always has value of 135, i.e. puts 135 into accumulator for the OSBYTE calls in lines 800 and 860.
SPEED% Current speed of game.
SCORE% Total score for current player.
HISCORE% The current hiscore.
TITLE\$ Program title, i.e. "ASTEROID CHASE".
JOYSTICK% Whether a joystick is in operation or not.
GAMEND% Whether game has ended or not.
N0%, N1%, N2%, etc. Utility numeric variables.
L0%, L1%, L2%, etc. Utility loop control variables.
X0%, X1%, Y0%, Y1%, etc. Utility co-ordinate variables.
S0%, S1%, S2%, etc. Utility string variables.

RUNdown

Lines	Action
10-50	Remarks.
60	Error handling.
70-180	Procedure calls.
190-1620	Procedure calls.
190-400	DEF PROCinitO: all the once-only initialising is done.
410-490	DEF PROCinit1: rest of initialising is done.
500-650	DEF PROCTitlepage: produces title page.
660-740	DEF PROCdisplay: produces game display
750-930	DEF PROCgame: the main game procedure which is repeated until the game ends. Note lines 800 and 860 contain OSBYTE calls (A = 135) which return zero if the character at the text cursor is unreadable — i.e. an asteroid is there. See Acorn Electron User Guide page 237 or BBC Micro User Guide page 432.
940-960	DEF PROCow: picks a random position for the cow.
970-1050	DEF PROCexplosion: graphic and sound effects.
1060-1200	DEF PROCgone: cow is teleported.
1210-1470	DEF PROCscorepage: calculates new rank and displays 'Hall of Fame'.
1480-1620	DEF PROCINSTRUCTIONS: displays brief instructions on how to play.

By Daniel J. Bishop

Ever tried chasing space cows in the asteroid belt? If not, try this game for the BBC Micro Model B and Acorn Electron — it could send you crazy! These creatures are really awkward. . . .

The game has been tested on both the BBC and the Electron. It has been especially written to be equally good on both machines, taking full advantage of their speed, hi-res graphics and superb synthesiser sound. It also works with discs and joysticks.

When you run the program, you are presented with a title page. You may press 'I' to see the set of brief instructions included in the program. You may press 'S' to start the game, or if you have a joystick you may start the game by pressing its firebutton.

The screen display is drawn and the game starts immediately with an audible bleep. At the top of the screen is the title of the game. At the bottom left is the current high score. The time elapsed since the start of the game is printed at the bottom right. The rest of the screen is randomly filled with twenty white asteroids of varying size. In the centre is a flashing square pattern — this is the teleport. Below it is a flashing 'cross' — this is the


```

10 REM/ ASTEROID CHASE / A GAME FOR ONE PLAYER /
20 REM/ WRITTEN BY DANIEL J. BISHOP /
30 REM/ VERSION 1.0 / 1 OCT 1983 /
40 REM/ NEEDS : BBC MICRO MODEL B / ACORN ELECTRON /
50 REM/ DISKS & JOYSTICKS COMPATIBLE /
60 ON ERROR MODE6:PRINT:REPORT:PRINT" at line ";ERL:
END
70 PROCinit0
80 REPEAT
90   MODE6
100  PROCTitlePage
110  MODE5
120  PROCdisplay
130  REPEAT
140    PROCgame
150    UNTIL GAMENDX=TRUE
160  MODE6
170  PROCscorePage
180  UNTIL FALSE
190  DEF PROCinit0
200  LOCAL N0%,L0%
210  DIM ASTPOSX(19,1),COWPOSX(1),SBOTPOSX(1),SCOREX(8)
,NAME$(8)
220  JPOS0%=1000:JPOS1%=64520:TP0%=640:TP1%=800:TP2%=38
41:TP3%=480:SID0%=944:SID1%=1264:SID2%=48:SID3%=48
230  AZ=135:HISCOREX=900:TITLE$="ASTEROID CHASE"
240  N0%=HISCOREX
250  FOR L0%=0 TO 8
260    SCOREX(L0%)=N0%
270    N0%=N0%-100
280    NAME$(L0%)="X"
290  NEXT
300  VDU23,224,66,165,90,60,60,90,165,66
310  VDU23,226,186,124,57,127,127,57,124,186
320  VDU23,227,96,80,72,100,114,50,52,74
330  VDU23,228,120,196,226,209,233,242,250,108
340  VDU23,229,0,16,56,52,52,52,24,0
350  VDU23,230,128,72,16,4,32,2,72,1
360  VDU23,231,16,1,34,16,64,20,128,32
370  VDU23,232,64,4,32,0,2,16,68,0
380  VDU23,233,126,195,189,165,165,189,195,126
390  ENVELOPE1,1,126,-20,-126,12,3,12,30,0,0,-1,126,126
400  ENDPROC
410  DEF PROCinit1
420  LOCAL N0%,N1%,N2%,N3%,N4%,N5%,N6%,L0%
430  N3%=TP0%+32:N4%=TP1%+64:N5%=TP2%-32:N6%=TP3%-32
440  N1%=SID1%-SID3%:N2%=SID0%-SID2%:FOR L0%=0 TO 19:N0
%:=FALSE:REPEAT:REPEAT:ASTPOSX(L0%,0)=RND(N1%)+SID3%:ASTPO
SX(L0%,1)=RND(N2%)+SID2%:UNTIL ASTPOSX(L0%,0)<N6% OR ASTP
OSX(L0%,0)>N4% OR ASTPOSX(L0%,1)<N5% OR ASTPOSX(L0%,1)>N3
%
450  UNTIL N0%=FALSE:NEXT
460  PROCcow
470  SBOTPOSX(0)=10:SBOTPOSX(1)=18
480  GAMENDX=FALSE:SCOREX=0:SPEEDX=6
490  ENDPROC
500  DEF PROCTitlePage
510  LOCAL S0%,N0%
520  REPEAT
530    VDU23:8202:0:0:0:
540    VDU19,1,5,0,0,0
550    PRINTTAB(12,7)TITLE$TAB(8,9)"A Game For One Play
er"TAB(9,11)"BY DANIEL J. BISHOP"
560  PROCinit1
570  PRINTTAB(6,14)"Press 'I' for instructions"TAB(2,
15)"Press 'S' or 'firebutton' to start"
580  *FX15,1
590  REPEAT
600    S0%=INKEY$(1):N0%=ADVAL(0)AND3
610    UNTIL S0%="I" OR S0%="S" OR N0%=1
620    IF S0%="I" THEN PROCInstructions
630    UNTIL S0%<>"I"
640    IF N0%=1 THEN JOYSTICKX=TRUE ELSE JOYSTICKX=FALSE
650  ENDPROC
660  DEF PROCdisplay
670  VDU23:8202:0:0:0:
680  VDU19,1,7,0:19,2,9,0:19,3,5,0:
690  PRINTTAB(3,1)TITLE$TAB(0,31)"HI=";HISCOREX;" TIME=
0";
700  COLOUR2:VDU30,31,10,16,233
710  VDU5:GCOL0,1:FOR L0%=0 TO 19:MOVE ASTPOSX(L0%,0)-3
2,ASTPOSX(L0%,1)+16:VDU RND(3)+226:NEXT
720  VDU4
730  SOUND0,-10,0,3:TIME=0
740  ENDPROC
750  DEF PROCgame:LOCAL N0%:VDU30:COLOUR0:PRINTTAB(SBOT
POSX(0),SBOTPOSX(1))CHR$224;
760  IF (INKEY-73 OR (JOYSTICKX=TRUE AND ADVAL(2)>JPOS1
%))AND SBOTPOSX(1)>2 THEN SBOTPOSX(1)=SBOTPOSX(1)-2
770  IF (INKEY-105 OR (JOYSTICKX=TRUE AND ADVAL(2)<JPOS
0%))AND SBOTPOSX(1)<29 THEN SBOTPOSX(1)=SBOTPOSX(1)+2
780  IF (INKEY-67 OR (JOYSTICKX=TRUE AND ADVAL(1)<JPOS0
%))AND SBOTPOSX(0)<18 THEN SBOTPOSX(0)=SBOTPOSX(0)+2
790  IF (INKEY-98 OR (JOYSTICKX=TRUE AND ADVAL(1)>JPOS1
%))AND SBOTPOSX(0)>1 THEN SBOTPOSX(0)=SBOTPOSX(0)-2
800  VDU31,SBOTPOSX(0),SBOTPOSX(1):N0%=(USR(&FFF4)AND&F
F0)/DIV&100:IF N0%=0 THEN SOUND0,-15,4,2:TIME=TIME+100
810  VDU30:COLOUR2:PRINTTAB(SBOTPOSX(0),SBOTPOSX(1))CHR
$224;VDU30:COLOUR0:PRINTTAB(COWPOSX(0),COWPOSX(1))CHR$22
6
820  IF COWPOSX(0)<SBOTPOSX(0) AND COWPOSX(0)>2 THEN CO
WPOSX(0)=COWPOSX(0)-1

```

```

830  IF COWPOSX(0)>SBOTPOSX(0) AND COWPOSX(0)<16 THEN C
OWPOSX(0)=COWPOSX(0)+1
840  IF COWPOSX(1)<SBOTPOSX(1) AND COWPOSX(1)>4 THEN CO
WPOSX(1)=COWPOSX(1)-1
850  IF COWPOSX(1)>SBOTPOSX(1) AND COWPOSX(1)<28 THEN C
OWPOSX(1)=COWPOSX(1)+1
860  VDU31:COWPOSX(0),COWPOSX(1):N0%=(USR(&FFF4)AND&FF0
0)/DIV&100:IF N0%=0 THEN SOUND 0,-10,4,2:TIME=TIME+50
870  VDU30:COLOUR3:PRINTTAB(COWPOSX(0),COWPOSX(1))CHR$2
26
880  IF COWPOSX(0)=SBOTPOSX(0) AND COWPOSX(1)=SBOTPOSX(
1) THEN PROCExplosion(SBOTPOSX(0),SBOTPOSX(1)):GAMENDX=TR
UE
890  IF COWPOSX(0)=10 AND COWPOSX(1)=16 THEN PROCgone:P
ROCcow
900  IF SBOTPOSX(0)=10 AND SBOTPOSX(1)=16 THEN PROCExp1
osion(SBOTPOSX(0),SBOTPOSX(1)):GAMENDX=TRUE
910  VDU4,30:PRINTTAB(0,31);"HI=";HISCOREX;" TIME=";TIM
E;
920  N0%=TIME:REPEAT:UNTIL TIME>N0%+(SPEEDX*5)
930  ENDPROC
940  DEF PROCcow
950  REPEAT:COWPOSX(0)=RND(10)+5:COWPOSX(1)=RND(10)+5:U
NTIL COWPOSX(0)<>10
960  ENDPROC
970  DEF PROCExplosion(X0%,Y0%)
980  X0%=32+64*X0%:Y0%=16+(31-Y0%)*32
990  LOCAL L0%:VDU5
1000  FOR L0%=0 TO 30
1010    FOR L1%=0 TO 400:NEXT
1020    MOVE X0%,Y0%:PLOT0,RND(128)-64,RND(64)-32:GCOL3,
RND(4)-1:VDU RND(3)+229:SOUND 810,-15,RND(3)+3,-1:NEXT
1030  VDU4
1040  *FX15,0
1050  ENDPROC
1060  DEF PROCgone
1070  LOCAL N0%,L0%
1080  N0%=TIME
1090  N0%=(100000/N0%)
1100  SCOREX=SCOREX+N0%
1110  SOUND 1,1,0,40
1120  FOR L0%=0 TO 100
1130    COLOUR RND(4)-1:VDU30,31,10,16,233
1140    PRINTCHR$30TAB(0,31);STRING$(19," ");CHR$30TAB(6
,31)*SCOREX;"N0%";NEXT
1150  COLOUR2:VDU30,31,10,16,233
1160  COLOUR3
1170  PRINTCHR$30TAB(0,31)"HI=";HISCOREX;" TIME=0 ";
1180  IF SPEEDX>0 THEN SPEEDX=SPEEDX-1
1190  SOUND0,-10,0,3:TIME=0
1200  ENDPROC
1210  DEF PROCscorePage
1220  LOCAL N0%,N1%,N2%,S0%,S1%,L0%
1230  VDU19,1,5,0:
1240  N0%=-1:REPEAT:N0%=N0%+1:UNTIL SCOREX>=SCOREX(N0%)
OR N0%=8
1250  IF N0%=8 AND SCOREX<SCOREX(N0%) THEN 1370
1260  N1%=SCOREX:S1%="?"
1270  FOR L0%=N0% TO 8
1280    N2%=SCOREX(L0%):S0%=NAME$(L0%):SCOREX(L0%)=N1%:N
AME$(L0%)=S1%
1290    N1%=N2%:S1%=S0%
1300  NEXT
1310  HISCOREX=SCOREX(0)
1320  VDU19,1,5,0,0,0
1330  PRINTTAB(13,3)TITLE$
1340  PRINT""Congratulations...you have a rank of ";N0
%+1
1350  INPUT""What is your name",S0%
1360  NAME$(N0%)=LEFT$(S0%,12)
1370  CLS
1380  PRINT""STRING$(12,CHR$227);" ";TITLE$;" ";STRING$
(12,CHR$227);
1390  PRINTTAB(14)"Hall Of Fame"
1400  FOR L0%=0 TO 8
1410    PRINTTAB(6;L0%+1;TAB(14);NAME$(L0%);TAB(31);SCO
REX(L0%))
1420  NEXT
1430  PRINT""Press any key to play again..."
1440  TIME=0:REPEAT:UNTIL TIME>100
1450  *FX15,0
1460  N0%=GET
1470  ENDPROC
1480  DEF PROCInstructions
1490  LOCAL N0%
1500  CLS
1510  PRINT"STRING$(12,CHR$227);" ";TITLE$;" ";STRING$(1
2,CHR$227);
1520  PRINTTAB(14)"INSTRUCTIONS""You are catching spac
e cows in the asteroid belt. Use your robot ship to
guide the cow into the central teleport."
1530  PRINT"Be as fast as you can and try not to hit too
many asteroids. Do not crash your ship into either the
teleport or the cow."
1540  PRINT"You may use a joystick or the keyboard to c
ontrol your robot ship. The keys are as follows:"
1550  PRINTTAB(15)"Z -left"TAB(15)"X -right"TAB(15)"
UP"TAB(15)" / -down"
1560  PRINT"Happy hunting!"
1570  PRINT"<<Press any key to continue>>";
1580  TIME=0:REPEAT:UNTIL TIME>100
1590  *FX15,1
1600  N0%=GET
1610  CLS
1620  ENDPROC

```


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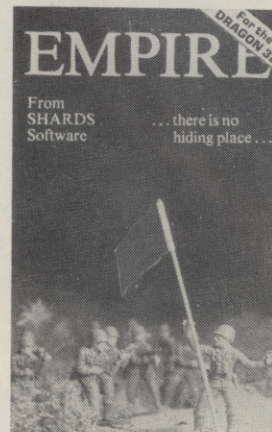
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OGLES for BBC/B

Designed with people of all ages in mind this programme provides an aid to learn and match colours as well as being very entertaining. Not only have colours to be matched in sequence but co-ordination skills can be developed by moving the correct coloured OGLE to match a pattern displayed on the screen. Interest and amusement are provided by you as Gordon having to control your pet dog Flash by guiding him to collect the matching OGLE, carry it back and to drop it at the correct position. There are two levels of play.

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AAARGH! CONDOR for Commodore 64
100% fast action machine code. Avoid the obstacles and hazards to climb the mountain to reach the Spear. Then slay the Condor before it carries your bird off!

BARRELDROP! for 48K SPECTRUM

Poor Gordon! His drainpipes are blocked again and the only way to clear them is to drop barrels down them. Gordon stands on the top of his roof with 5 barrels. When the game starts he'll roll one down the roof. Press **SPACE** to drop it through the roof accurately into the centre of a drainpipe and you'll score the number of points in the pipe, which will start to flash, and Gordon will get the barrel back for another go. The barrel will be lost if the drop is inaccurate, or into a pipe already filled, but - Flash the dog is on hand! If you know you're going to lose the barrel and you can see Flash peeping out from the bottom-right corner, press **D** and Flash will save it! Once you clean all 5 pipes, you will get a bonus, but there's a surprise in store before you get the next set of pipes to fill. £5.95

SUPERSNAILS for 16K or 48K SPECTRUM

Snails specially imported from West Africa are being kept in Dr. Van Winklehoff's laboratory for genetic experiments. The Doctor has turned them into a super-breed of snail who now leave behind a trail of super glue that will trap any snail touching it. Two of the snails, continually moving and controlled by the players, escape from their pens into the laboratory. Unfortunately, only one of the snails can escape from here into the outside world without raising the alarm. You must therefore trap your opponent and then try to escape through the small door which will then appear.

Features:-
• Fast Action - 100% Machine Code
• Nine levels of difficulty
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EGBERT for COMMODORE 64

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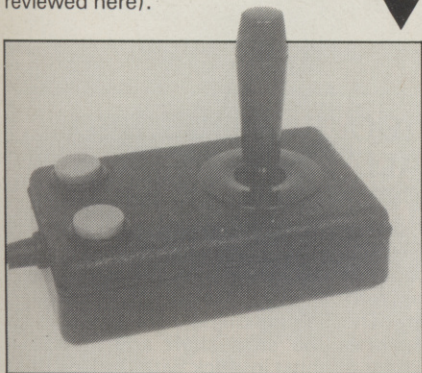
GAMES COMPUTING JANUARY 1984

In the battle for higher high scores a new joystick is often a wise choice for the hardened games player but costs £7.50 to about £30 and beyond. I have not included any trackballs, (large boxes which have a billiard-type ball protruding from the top which can be spun in any direction in joustick fasion) in this review because they are still quite rare and expensive to buy.

All of these joysticks are reasonably good standard but value for money varies tremendously. So here goes

COOKBRIDGE SURESHOT £15.95

Cookbridge computer supplies have called their new joystick the Sureshot, a version of which is also available for the BBC and Dragon micro computer. Unlike any of its rivals it uses microswitches which give a very positive feel being both fast and accurate. It does not look as professional as some of its rivals but under the casing lurks a steel plate and some excellent design. The mechanism which works the fire button has superb feedback allowing some rapid fire. The only joystick which I think is superior is The Boss (also reviewed here).



THE BOSS £16.80

The Boss is not one of Wico's Command Control range, it is aimed at a cheaper market. This is not a very attractive joystick but what matters is the way it performs. The speed at which you can change direction is amazing and although not as positive as the Cookbridge it is just as much a pleasure to use. The handle is a comfortable grip shape which tends to make your hands sweaty. The single fire button is mounted on top of the stick and has the best spring I've come across. Coupled with its medium price and Wico's construction this is my personal favourite and I thoroughly recommend it.



Playing computer and video games to the full relies very heavily on a really good joystick. In *Games Computing* Simon Rockman looks closely at a selection of those now on sale.

JOYSTICK JAMBOREE

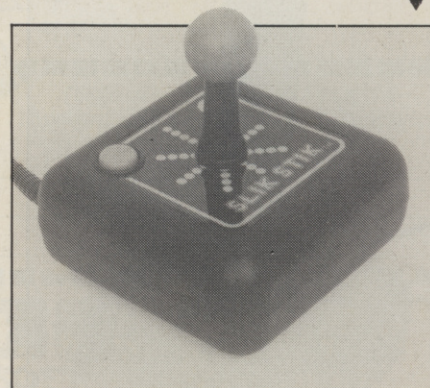


SUNCOM TAC2 £18.95

The TAC2 is the pride of Suncom's range. TAC stands for Totally Accurate Controller — a boast which I feel is justified. The way in which it succeeds in being so accurate is by using the central shaft of the joystick as part of the electrical circuit, so that when you move it the shaft has only to touch a contact rather than close a switch. This makes for a very fast joystick with very accurate control. Minor complaints are the lack of play in the stick and lack of spring in the fire button.

SUNCOM SLICKSTICK £9.95

The Suncom Slickstick is tiny, the stick hardly moves at all and cannot really be classed as a premier joystick. The fire button does not have sufficient bounce and feels like a calculator key. Having said that it is really rather nice to use especially for the zapping aliens school of games, although it may lose out to its similarly priced rivals in maze games. It is cheap and probably the stick to buy with your new computer or to get the shop to throw in as a discount, if you can talk them into doing so! Dealers watch out!



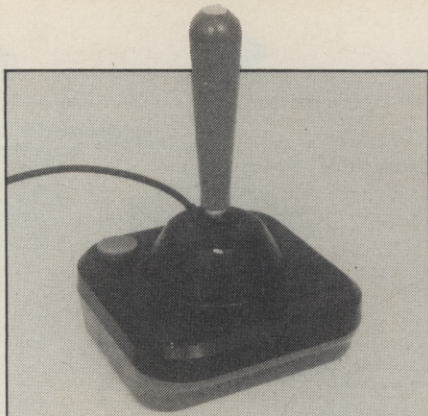
ATARI STANDARD JOYSTICK £7.50

The first joystick is the Standard Atari product. It is the cheapest at £7.50 and also the most commonly used. By being the biggest firm in the games market Atari have succeeded in forcing a standard so that their joysticks will not only fit Atari machines (both computers and VCS) but Commodore, Sinclair ZX, Interface 2 and many American computers. Interface cards are available for everything from the IBM PC and Apple to the Sinclair ZX81 and Texas TI99/4A. All the joysticks in this review are Atari compatible. The Standard joystick is rather good. It uses pressure sensors such as those under the Spectrum keyboard pressed by extensions to the central shaft. It is a bit 'wooden' especially when new but once worn in it is excellent. The Atari is not for the over zealous player though because it is made purely of plastic and tends to wear out more quickly than others.



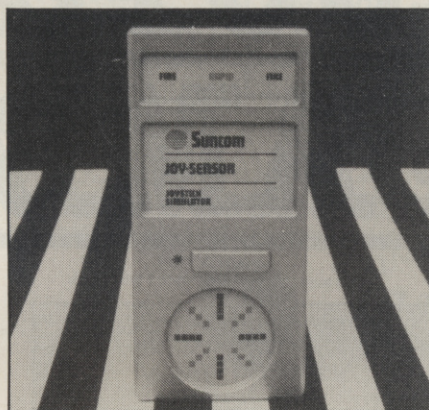
POINTMASTER JOYSTICK £14.65

The Pointmaster is a very large joystick and suffers from slackness. While the forward movement is good, side to side movement feels vague. The base has large suckers to hold it on to a table but the suction is not usually sufficient for a hectic game like Frogger. One nice feature is the auto repeat on the fire button which means that as long as you hold down the fire button it will keep firing, which is very useful if you're under constant attack. The soggy feel and lack of ruggedness are serious detriments to the Pointmaster, however the packaging is of a high quality.



COMMAND CONTROL STRAIGHT STICK £25.25

Wico's Command Control Joystick is the bottom of Wico's extensive range of high quality joysticks. Using leaf springs it has a real arcade feel to it. The narrow, tapered handle has a nice feel and gives a good sense of direction. The use of steel for any part which may be subject to wear makes for an exceptionally strong joystick. This is one of the few joysticks which has bouncy enough fire buttons. There are two buttons, one on the base in a conventional fashion and the other on the top of the stick. You select one of the two buttons with a small switch on the base. This is a good joystick but the price limits it to only the dedicated games player.

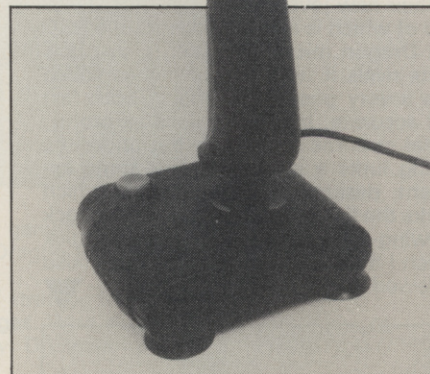


SUNCOM JOYSENSOR £29.95

The Suncom Joysensor calls itself a joystick simulator. It has a touch sensitive pad where the stick should be. In practice you tend to run your finger around this similar to using Intellivision paddles. It is more like a set of buttons than a joystick. For the type of game which requires accuracy but not speed it is very good. However, the need to stop and work out where your finger should be slows you down too much for quick reaction games, despite the maker's claim that it is faster because you do not have the friction of the stick to overcome. The fire buttons are very poor, probably because you have to lift your finger as well as press down due to the lack of a spring. There is a rapid fire button but this was unreliable, often not firing and sometimes only in short bursts. With its "Beam me up, Scotty" looks I feel it is really an expensive novelty, but perhaps worth having for a Christmas present!

SPECTRAVIDEO QUICKSHOT £9.95

The Spectravideo Quickshot looks great, having suckers on the bottom and a banana shaped handle which is very comfortable to hold. As with the Pointmaster the suckers are not really strong enough to ensure stability. Fire response is fair, although like most of the joysticks it would benefit from a stronger spring. The internal workings are very similar to those of the standard Atari joystick using pressure pads. It is entirely plastic in construction and therefore may not stand up to rough use.

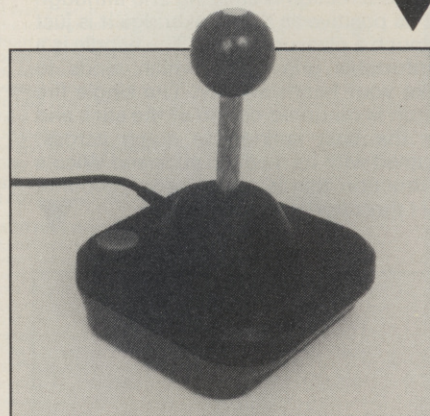


WICO 'FAMOUS RED BALL' £29.95

This is a really first-class joystick for the true arcade games enthusiast.

Like the basic Command Control joystick it has fire buttons on the stick and base with a switch to select between them. The ball handle is comfortable to grip, while the steel shaft and springs make for a robust joystick with the kind of excellent responses you would expect at this price.

My only criticism is that the shaft is a little on the long side of comfortable. As with all the WICO joysticks firing is smooth and rapid. This is a very good joystick, but taking the price into consideration is only worth buying if you play arcade games morning, noon and night!



WHERE TO BUY YOUR JOYSTICK

These joysticks can be obtained from the Silica Shop (01-301 1111) who loaned them to *Games Computing* for the review. Cookbridge Computer Supplies can be contacted direct on 0532 670625.

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ELECTRONIC

With Christmas just around the corner now's the time to look for the odd present or two — maybe something expensive or a couple of smaller stocking fillers.

Jane Price took time out to find out what she wants (or doesn't want) for Christmas and helps you decide too.

SYSTEM: VECTREX

Manufacturer: Milton Bradley
Price: £129.95

This exciting system is a leader in the field of electronic video games. The unit consists of a large upright screen underneath which is a control panel, fitting neatly inside the machine for storage but which can be moved away for more efficient operation when the game is in use. This control panel is equipped with a mini-joystick and four buttons, for movement and FIRE.

Design

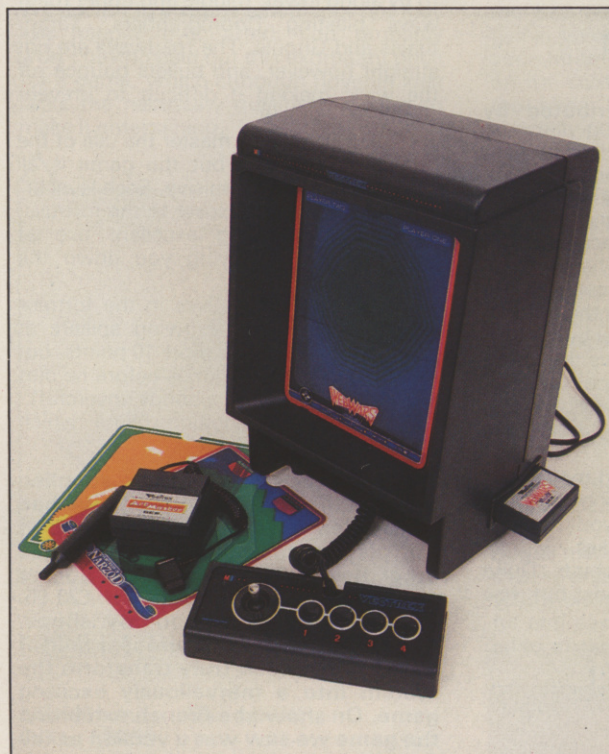
The screen is angled and has perspective (a function which is intensified and used brilliantly during game play) and each game cartridge is supplied with a screen overlay providing coloured graphics. This is a clever idea allowing the machine to produce black and white graphics, which are then converted to colour when viewed through the overlay. Added advantages of this overlay are that flicker is kept to a minimum and the vectors in use in the game can be explained.

Revolutionary Graphics

The Vectrex system frees the ordinary domestic TV for other things, though any family owning this system probably has little time for watching mundane TV programmes! In addition to this, having a dedicated system allows for the luxury of a vector plotted display. This works by physically drawing the pattern to be displayed on to the phosphor screen and to continually redraw the same pattern to give the illusion of solid lines and therefore of solid objects instead of moving dots. Consequently all the lines are smooth, even the steep curves in 'Pole Position'. All this means that the Vectrex can achieve the quality of graphics normally possible only on a system costing thousands of pounds.

Outer Limits

However, little is perfect and the Vectrex is limited in two respects. It doesn't actually have screen colour, as explained, and there is a limit as to how much can be on the screen at any one time. When the action is too intense flickering becomes a problem. The reason for this is that the system doesn't have enough time to con-



FOR

WHAT'S IN STORE

TITLE: ART MASTER AND VECTREX LIGHT PEN

Manufacturer: GCE (Distributed by Milton Bradley)
Price: £30.35 including Cartridge (approximately)

This is the most educational cartridge which with the light pen proved to be extremely popular entertainment. The software is of such high quality that the light pen worked perfectly. The cartridge contains three major programs called Sketch, Connect and Animate.

Sketch allows you to draw lines and points, drag and stretch these lines across the screen and to draw fans. *Connect* just allows you to draw dots and to connect them with lines, all with high resolution. *Animate* is the program which really makes the cartridge, giving a real animation effect to all your pictures.

This program gives you all the features of Sketch bar the fans but you can divide the pictures up into frames and then play them through one at a time. The only un-

tinually overdraw all the images and some consequently begin to disappear before they can be redrawn, hence flicker.

Since the screen content at any one time is limited, all shapes are drawn in outline only. The speed of refresh and the good straight lines make it an ideal medium for 3D rotation, a facility which it carries out extremely well and which is demonstrated to good advantage in many of the cartridge games, particularly 'Web Wars', one of the latest releases.

The sound is good, comparable with the BBC micro for example, and one of the new cartridges 'Spike' has quite good, and certainly understandable, speech synthesis.

Although expensive the Vectrex system is the best of its kind, versatile with good software back-up. As for entertainment value, all I can say is that the one we had for review was in constant use by anyone 'who just happened to be passing by' the office, and these all hardened computer game addicts so they knew what to look for! Higher recommendation I cannot give and I'm sure any family would derive hours of entertainment (and not a little frustration) from such a high quality product.

fortunate thing is that when the machine is switched off, your masterpieces disappear because there is no way of storing them, which can be soul-destroying if you've taken a long time drawing them.

All in all this cartridge will without doubt provide every member of the family with hours of fun — it really is a pleasure to play and relax with.

TITLE: BEDLAM

Manufacturer: GCE (Distributed by Milton Bradley)
Price: £22.95

I found this the least exciting of the new releases for the Vectrex system.

The plan is to control a spaceship fixed in the centre of the screen. The play area is confined to a sector which consists of a collection of triangles. Initially this is a diamond but this progresses level by level up to a six pointed star. After this the shape starts to rotate. From the apex of each point comes a nasty assortment of aliens, escort ships, astral defenders, droids and colonist transports.

You are armed with an 'anti-molecular' cannon and a smoke bomb. The game is a bit like 'Asteroids' in that you have to blast all approaching baddies with a bonus cannon every 10,000 points. Quite entertaining for short periods but has limited graphics.

TITLE: SPINBALL

Manufacturer: GCE
Price: £29.95

Pinball on a computer has never been the greatest of games but this implementation is very impressive.

There is a pause facility and buttons for LEFT and RIGHT flippers. The table can be nudged by tapping the joystick, but not too much or it tilts like the real arcade machine. There are drop targets which must be hit in sequence and 'hidden' bonuses. Some very high combination scores are possible.

One slight criticism is that the high level of detail causes the screen to flicker rather noticeably. Definitely a game to get hooked on!

TITLE: WEB WARS

Manufacturer: GCE
Price: £22.95

Another new release for the Vectrex system. This is an excellent cartridge with good use of colour overlays and shifting perspective. Having, by the magic of Web Wars, been transformed into a Hawk King, you must fly down a Tempest-style web and destroy the drones which act as an escort to the fantasy creatures.

With your capture rod you must impale the fantasy creatures and then fly down the tunnel and out through a porthole. On the other side of the portholes lies the Trophy Room, a store room for all the fantasy creatures you capture. With each creature attack the speed at which you fly down the tunnel increases making the game harder and harder. This was the most popular game out of those we reviewed until we discovered Fortress of Narzod, a review of which follows shortly.

TITLE: FORTRESS OF NARZOD

Manufacturer: GCE
Price: £29.95

Armed with only a hovercraft (?) you have to fly along lower, middle and upper roadways blasting Doomgrabbers, Tarnatualas and Ghouls. The roadways are not straight however, and bullets bounce off the walls making it difficult to prevent shooting yourself!

It takes a while to master the use of the gun and ricochets, but the game is all enveloping and compulsive. Each level brings you closer and closer to the fortress, the game exhibiting excellent use of perspective while flying you down the tunnels.

The mystic Hurler lives in the fortress and he delights in throwing spikers at you. His life is worth a mere 10 points, but he has to be shot six times before he dies and rewards you with a bonus hovercraft.

An absolutely gripping game which kept staff quiet for ages!

All the cartridges were supplied with detailed instructions and we had no problem loading them and lots of fun playing them. Look out for the other new releases: Football/Soccer at £29.95 and Bedlam at £22.95. Available from all good toy shops. Also coming in the future is a pair of 3D goggles which truly transform the system into a marvellously exciting game. On show at a French exhibition the game we saw was a version of the Star Wars trench shoot out in which the player flies a space ship down a narrow shaft, shooting enemy craft along the way and ultimately destroying the Death Star.

Watch out in your newsagent for *Games Computing* and this incredible new addition from Vectrex.

GAME: DR DENTAL

Manufacturer: Bandai UK
Price: £11.00

The name suggests that this might be a game to get your teeth into! Compared to the other Bandai electronic small screen

games I tried, this one at least had a sensible and understandable theme.

The game involves a dental nurse shooting at 'bugs' in a patient's mouth, an occurrence which might be commonplace in Japan but which is thankfully rare enough here to cause some confusion as to how the game is played.

In fact, the 'bugs' attack the teeth (the dreaded plaque attack strikes) and must be destroyed before they have eaten their way through three layers. If they succeed in their unpleasant purpose they cause pain to the patient, tears ensue and the game is over. There are two levels of play — fast and faster!

The packaging, like the other Bandai toys is sturdy enough, though lacking the quality feel and look of the GLC products. The keys, LEFT, RIGHT and FIRE are rubbery and slow to respond and the sounds are unimaginative — not one scream was audible! The led graphics are simple, but detailed enough for this level of game. The highest score for each game is remembered and displayed and a clock is included.

Not a game which held my interest for long and which I feel is overpriced and not likely to fire anyone's imagination.

GAME: BURGER BAR

Manufacturer: Bandai UK
Price: £11.00

This game defeated me completely! A cheap plastic case with tightly packed, unresponsive keys surrounded a tiny screen showing simple black graphics.

From what I could gather of the game through watching the action and reading the instruction leaflet, an order of one to four items is displayed pictorially. One blink and it's gone! The waitress must be moved to one of three hatches through which the various items pass in a random and constantly changing pattern. Everything happened too fast for the keys to cope with and consequently frustration ran high!

The idea behind the game was quite novel and could have proved entertaining had the design been better and more thought gone into its production. Again the highest score was recorded on the screen and a digital clock was included in the game.

The price, however, is unwarranted.





GAME: U BOAT

Manufacturer: Bandai UK
Price: £39.00

The only two player game we had the chance to review and one which left us somewhat confused.

Like 'Vampire' the casing is in sturdy plastic, and shaped rather like a U Boat. The sloping screens were placed back to back with each player's set of control buttons in a panel below the screen. Again a miniature joystick controlled the action, in addition to two FIRE buttons.

There are three games possible: two player action, COM versus U Boat and COM versus Destroyer. All are somewhat difficult to understand even with the instructions supplied. The screen displays the situation either from the Destroyer's side or from the U Boat's. Coloured striations give some idea of the depth of the U Boat which is firing torpedoes at the Destroyer while the latter drops depth charges in retaliation.

A confusing game with little novelty value and a very high price!

GAME: VAMPIRE

Manufacturer: Bandai UK
Price: £35.50

At this price you would expect a game not only of outstanding and lasting entertainment value but also one packed in a durable casing with efficient action keys.

The casing is of sturdy plastic painted grey and black with an angled screen showing coloured graphics of limited detail. There is a miniature joystick, which is quite difficult to manoeuvre, and a START/JUMP button. The grating sounds can thankfully be switched off.

Now to the game itself and how it's played. The ultimate aim is for the prince (he's the one with legs) to rescue the fair princess (plus crown but without the legs) from the evil clutches of the vampire, who tries to put a spoke in the works by throwing bats down the floor of the castle.

The prince is able to move in four directions — upwards being achieved by means of the JUMP key which is very temperamental and likely to fail you at the time you need it most. By this method the prince should jump over the bats. If he fails he gets a very nasty attack of bloodletting.

When the princess has been rescued the poor prince must start climbing

through the floors all over again, but this time he has to manoeuvre not only blood sucking bats, but also gaping holes which appear in the floors. After a further rescue and several more points being gained, the third and final scene is set up.

This time the prince uses a lift to collect various pieces of hardware (and points) before releasing the princess for a final time from the clutches of Vampire Victor. We are left to imagine whether or not they live happily ever after! You probably won't having paid out this exorbitant price for a game, which although novel in idea lacks the necessary quality of design to make it entertaining.



GAME: BREAKOUT

Manufacturer: Bandai UK
Price: £16.99

Another cunningly oriental solar powered travel pack with use limited to within 12 inches of an artificial light source!

The game appears to be based on 'What is the time, Mr Wolf?' and entails a convict moving from his bed to saw through the bars of his cell window. If he is seen doing this by the prison warden, who randomly patrols the cell, he loses a life. Three lives later, the game is over.

However, if you survive the evil eye and saw ten times through each of the four bars, the convict escapes to the prison yard where he has to evade dogs and bullets to reach a getaway car. Bonuses are given for successfully sawing through the bars and for reaching the car without mishap. All these bonuses are well-deserved especially in the prison yard since there are no UP and DOWN keys and dodging the various hazards is very difficult indeed as the action happens so quickly.

Again, not a very involved game but play is possible and not frustrated by poor design and insensitive movement keys. Quite addictive too!

The game is housed in two parts which are joined by a hinge and close up to form a case which is ideal for travelling or carrying in a briefcase or satchel.

Game and Watch

Game and Watch have been steadily popular toys for a couple of years now and seem to go from strength to strength with each new batch they bring out.

This trio is no exception and sport great graphics and colour screens. The first one

I looked at was called **Donkey Kong Junior**. This is a single game with a digital clock tucked away to the top left of the LCD screen. What you have to do in this game is move a monkey up through a path and grab a swinging key with which to unlock the cage containing Kong. It's really difficult to play because you must watch out all the time for snapjaws and birdies, both of which will kill you if your monkey makes contact with them. The game seems to be over all too soon as your three monkey lives are notched up on the screen. You can get rid of either the birds or snapjaws by dropping a specially positioned cherry on them. You can also score points for each one you dodge. Grabbing the key at the top of the screen is extremely hard to judge. In one way this is good because it makes you so frustrated that you want to keep on playing! If you miss the key your monkey falls straight through a hole into a pit at the bottom of the screen. Another life lost... so start again.

GAME: FROGGER

Distributor: CGL
Price: £32.95

A well made, well designed version of the classic arcade game. Encased in tough, yellow plastic, the angled screen is colourful and easy on the eye. Markers up the edge of the screen describe the different



levels of passage and the obstacles to be avoided on each. The score is brightly displayed in the centre of the screen and flashes when the game is over.

For those unfamiliar with the game of Frogger, the object is to move a frog across a road dodging traffic as it goes. Once across you then have to move it over a river by using a variety of obstacles as stepping stones.

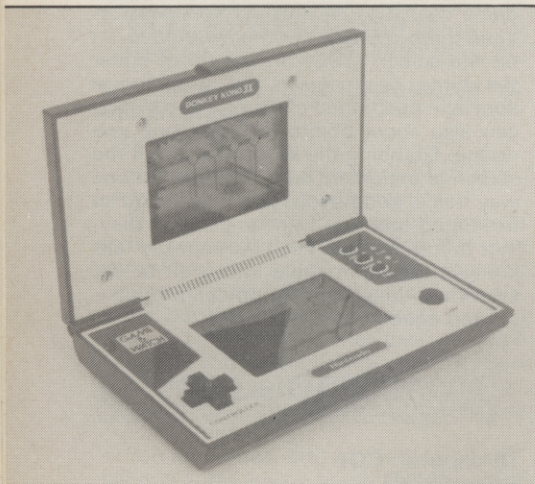
Control is achieved by a centrally positioned joystick which is perhaps a little too touch sensitive, making manoeuvring more difficult than it need be — but this adds to the skill required.

All in all, an entertaining game giving value for money in a neat package.

GAME: DONKEY KONG

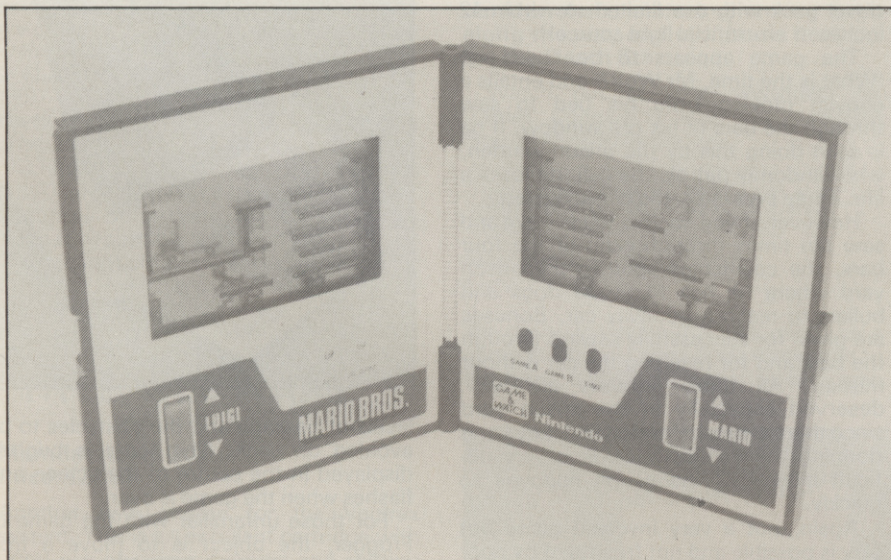
Donkey Kong was the most difficult of the CGL games to play. Another of the

two screened variety it really is complicated. The best way to approach it is to read the instructions very carefully and then have a go at the game itself. Once more you have to free the enchained Kong who is positioned at the top of the second screen. You must move a monkey along the lower screen avoiding snapjaws and bursts of overhead electricity current.



Once you get the monkey to the top of that screen, by jumping and hanging on to trailing vines he pops up on the top screen. There he has to climb and grabs the key to unlock Kong's chains.

On each of these games there is a four directional key and a jump button which is vital to use if you want to come out on top. All three games are really good fun to play even if they are anti-social. Once you



start playing you'll find you'll just want to better your score each time.

And precious little will stop you. These then are only a few of a whole range of similar type games. Value for money at times seems hard to justify, particularly Donkey Kong Junior which has a price tag of £19.95 with the other two games selling for £23.95 each including VAT. Perhaps you could twist a generous uncle or aunt's arm into buying you one for Christmas. Finally, in comparison to the Bandai range of similar products CGL's beat them into a cocked hat, and make them seem better value for money.

GAME: MARIO BROS.

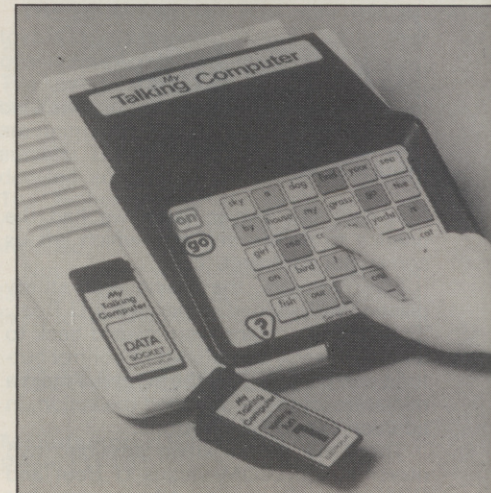
Mario Brothers was the second *Game and Watch* that I attempted to conquer, this time with more success I'm glad to say. This is a double screen game set in a plastic casing and joined by a hinge so the two games form a neat little case which you can easily carry in a jacket pocket or your school satchel. So those bored moments on the bus will be no more!

Here the aim of the game is for Mario to pass cases of bottles to his brother Luigi, who ultimately flings each one on to a truck until it's full up. The graphics in this game are superb. As the crates pass along a conveyor belt back and forth between screens you can see them being filled, packed and wrapped in minute detail. If Mario or Luigi let a crate fall there's a delightful sequence in which the foreman comes running out of the office and screams at the culprit for dropping the case.

Another similar graphics feature is the lorry driver. When six cases are safe and sound inside the lorry the driver pops up from the cab and starts screaming at Luigi for the final two to make up his load. If you get those two into the truck it pulls away and after a victory tune the game begins again but more faster and furiously. The scoring system is one point for each case loaded on to the lorry and 10 points for a full lorry load. It sounds fairly easy to play but in actual fact is quite difficult because the cases move along the conveyor belt quickly and at random intervals making it awkward for you to move either Mario or Luigi to the belt level in order to catch the case. Of all this type

years and upwards. There is now so much good educational software on the market that I'm not too sure of the logic behind paying out £60 for such a limited machine.

However, on review the unit proved to be extremely user friendly — an important point when such tiny fingers and minds are involved. Instead of a keyboard, there is a touch sensitive panel upon which various illustrated 'programs' are placed. Pressing the 'on' area produces an 'hello' (spoken in an American accent). Longer words and more complex sentences show up the limitations of this simulated voice, which to adult ears was fairly offensive



and at times, more than a little incomprehensible. Younger ears had less difficulty in understanding the commands.

The program inherent in the machine is aimed at teaching the time, identifying pictures and numbers and basic maths. The clock program is probably the best and proved to be the most popular with my young reviewers. The clock face is complete with raised movable hands which are pressed to pass on the information to the computer. Remember, although this is called a computer you can't program it yourself.

The data socket on the front of the unit is easily removed (perhaps a little too easily for busy, exploring fingers) and new cartridges can be inserted with different programs such as spelling, vocabulary, music and 'many more'.

Design

The unit is attractively packaged in tough beige and cream plastic. All parts are easily removable and most importantly, have rounded childproof edges. One criticism is that the data socket cover is too easily removed, exposing an area damage-prone to exploring fingers. Another plus point is that the surface and all the 'program' sheets are wipe clean.

In summary therefore, *My Talking Computer* is quite a clever, user friendly machine which kids will love. Thus learning should be quick and fun.

However, I must stress that there are many user friendly educational programs available for the major home computers and such a system would be capable of instructing the *whole* family from toddler to grandpa, which would seem to be a more economical way of educating the family.

MY TALKING COMPUTER

Manufacturer: Electroplay
Price: approx £60.00

My Talking Computer has been designed as a 'first' computer for children of three

AT LAST, A HOME COMPUTER THAT IMPROVES WITH AGE.



It's surprising how many first-time relationships with a home computer go sour with age.

You buy an attractive, discounted little machine so that you and the children can learn about computers.

Instead, you learn about its limitations: the dull graphics. The plugs that fall out. The cheap power supply. The unalterable "beginners" language. The stiff, fragile keys. No provision for future developments. If only you'd looked around a bit in the beginning... "Quality costs a little more, but it's usually worth paying for" (Personal Computer News - CGL M5 Review, June '83.)

The CGL M5 is designed and built by Sord, one of Japan's leading computer specialists, with three main ideas in mind.

First, to be easy and fun to learn and operate.

Second, to be rugged enough to last through hours and hours of operation.

And third, to form the basis of a powerful, versatile home computer system that won't need replacing until you're ready for a dedicated business system.

Built to learn

The CGL M5 is designed to be easy for non-geniuses to use.

"On the M5, most of the work is done for you, and all that is left is the need to work out what to do next, rather than how to do it." (Personal Computer News, June '83.)

If you make a mistake, you can correct it with a simple movement of the cursor. So you only correct that mistake, not a whole line; nor do you have to indulge in complex edit commands.

Budding video game designers and computer artists will love to get their hands on the 16 colour graphics and 32 moveable images called "sprites."

"The M5 makes professional graphic

effects very simple for even the beginner to achieve." (Personal Computer World, Aug. '83.)

Built to last

"It works first time, doesn't need a lot of mollycoddling and jiggery-pokery to persuade it to continue to do so, and what's even better; it continues to work well. You don't have to balance cold cartons of milk on the top, shove matches in the back to keep the plugs in, or press the keys with several pounds force to make them respond." (Personal Computer News, June '83.)

Being able to build things that work and carry on working without endless maintenance is something at which the Japanese seem to excel.

Built to grow

To be truly versatile, a home computer has to understand very different things.

So you need different "languages," which the M5 provides by supplying part of its memory in plug-in cartridges.

"The M5 eliminates the worst limitations on machines at this level, which is that they tend to be stuck with whatever language is provided by the management." (Personal Computer News, June '83.)

The computer is supplied complete with a Basic-I cartridge, a standard integer BASIC language and a simple learning text.

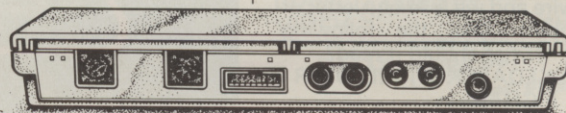
Plug in the Basic-G cartridge, and you can access the M5's incredibly sophisticated graphic and sound capabilities which are far in advance of similarly-priced computers.

Move on to the Basic-F cartridge, and you have scientific, technological and statistical computing power usually available only

on big computers with equally big price tags.

The FALC cartridge provides a tailor-made language for data management, spreadsheet accounts and business problems. Combine FALC with a disc and you could "turn the M5 into a small business machine." (Personal Computer Magazine, August '83.)

Now, take a look at the back of the M5.



Notice the sockets (usually an extra) for a standard

Centronics-type printer, the separate video monitor and hi-fi sound output.

Even the language cartridge socket has hidden potential:

"Unlike most such sockets, this one has 56 internal lines connected to it giving access to just about every function in the computer. This means that just about everything you can think of can be added onto the computer, ranging from a Prestel interface to second processor to use as an intelligent terminal on a timesharing computer..." (Electronics - The Maplin Magazine, March '83.)

Take a look at the home computer that will improve with age.

For a full technical specification of the CGL M5, details of the wide range of supporting software and to find out where to see a complete demonstration, send the coupon to: CGL, CGL House, Goldings Hill, Loughton, Essex IG10 2RR. Telephone number: 01-508 5600.

I'd like to know more about the CGL M5. Please send me a brochure and a list of dealers.

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CGL M5
HOME COMPUTER

BUILT TO LEARN. BUILT TO LAST. BUILT TO GROW.



By
Lou and
Les Falk

Fancy doing yourself some brain damage? If so, put your hand to some of our puzzles put together by a couple of reprobates from Hull called Lou and Les Falk. They have joined forces to make sure you don't have a moment's peace of mind with these brain teasers.

Mindbenders is a silly serious page which will appear in every issue of *Games Computing* to give you some relaxation from the more physical side of games playing.

There aren't any prizes for working out the correct solutions (well, maybe the odd one or two) but we hope you enjoy doing them anyway. And if you have any brain twisters which are particularly difficult why not send them to us and well see what Lou and Les think of them. You'll notice that some of the puzzles are dead easy, some excruciatingly difficult and some are plain silly.

You'll find the solutions to the puzzles in the following issue — so you'll have to contain yourselves for the answers until then.

Happy mindbending!

1: 'FIVE FINGER EXERCISE'

What are the next two letters in the following series —

Z X C V B

2: 'LOST LETTER'

Every so often our word processor goes haywire and we lose one letter of the alphabet. Take the following sentence — what should it read?

ETERIERICKEDAECKOFICKLEDEER

3: 'ALL THE EIGHTS'

Eight eights are sixty four on most calculators. But can you make eight eights equal one thousand?

4: Rearrange the letters of the MacPouter, the famous Scottish inventor and you will come up with a computer!

5: 'GAMES GAME'

In the following grid we have hidden the names of some well known computer games — reading across or down, backwards, forwards and diagonally. List as many as you can, and put the one you would like to win at the top. The longest list sent in wins the game of your choice. In the event of a tie we will cut up the cassette and send you a piece each!

H C T A C Z F O R T H E L L P
T O S P S D R O L R A W O A I
A P E P N F O S S E N D A M N
E D U E A A G D P M G Y S G B
D R Q N M C G S O A M B T I A
F A E E C L E L K T A U E N L
O G D T A U R I E H N G R E L
T O A R P X K F N S F L O G U
E N K A Y A N E T V R U I N A
N S C T L U N A R L A N D E R
A L O O C A R W A R S D S L E
L A L R S T P O O L S S E H C
P I B R E A K O U T T G K R O
L R B K S N A I X A L A G N S
E Z R P A R A C H U T E O B S

P

U

Z

Z

I

E

S

6: 'CROSSNUMBER'

5	11	9	16	14	8	11	12	16
11	2	16	2	1	2	12	2	10
13	2	9	1	19	16	20	2	1
11	5	1	2	6	2	3	13	13
17	2	20	2	2	2	13	2	7
3	10	15	2	14	2	18	11	8
11	2	9	3	4	20	1	2	3
6	2	11	2	11	2	1	2	1
14	7	12	16	20	12	13	11	6

Given that 19 letters of the alphabet are used, and 14 7 9 is the sum, can you complete the following crossword? By the way, the twentieth number represents black squares — look for the pattern.

6-

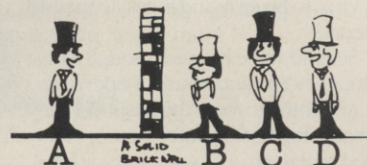
a: Irish Game —



Spot the Cursor!

7: 'LOGIC CHOPPING'

Each month we shall pay a brief visit to the imaginary land of Falkovia. This island is chiefly famous for its cruel and sadistic king and its whimsical legal system. The last time we were there, for instance, four condemned men were awaiting execution. In a sudden fit of clemency the king produced four hats, two black, two white, and put them on the heads of the four men after arranging them, shown in Fig 1.



The rules of the game were simple; the first man to deduce the colour of his own hat would be pardoned. There were four provisions though — anyone who looked at his own hat would be fed to the sharks. Anyone who turned round would be cut up and then fed to the sharks. Anyone using mirrors, or even moving would be boiled in Brylcreem! And anyone taking a wild guess would suffer an unnamed fate. The men were informed of all the rules.

What the king didn't mention was that only one of the four stood a chance. If you were one of the condemned men which would you choose to be — A, B, C, or D? And Why?

Next month — we visit an experimental penal institution, and tell you this month's answers.

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PCT-2

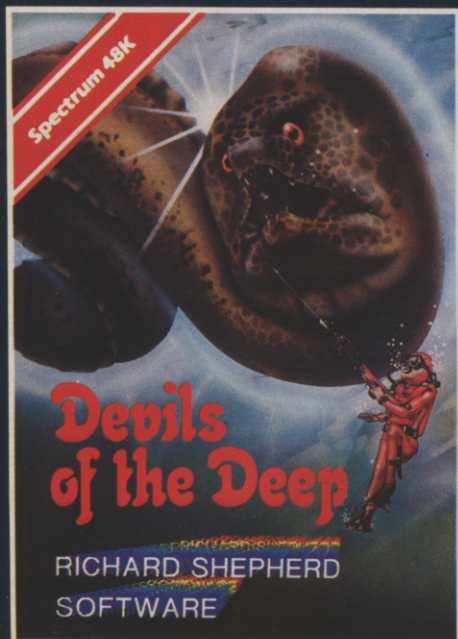
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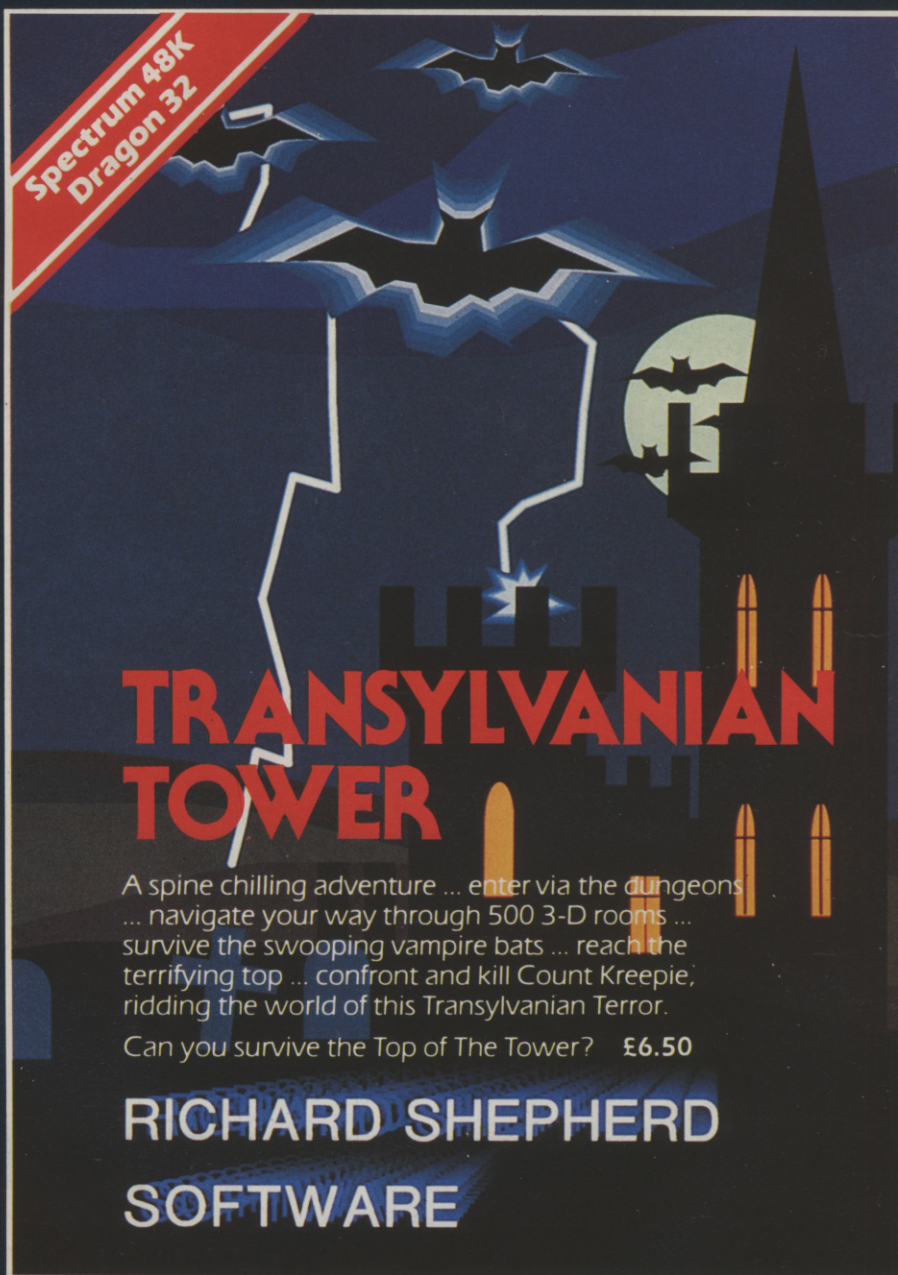
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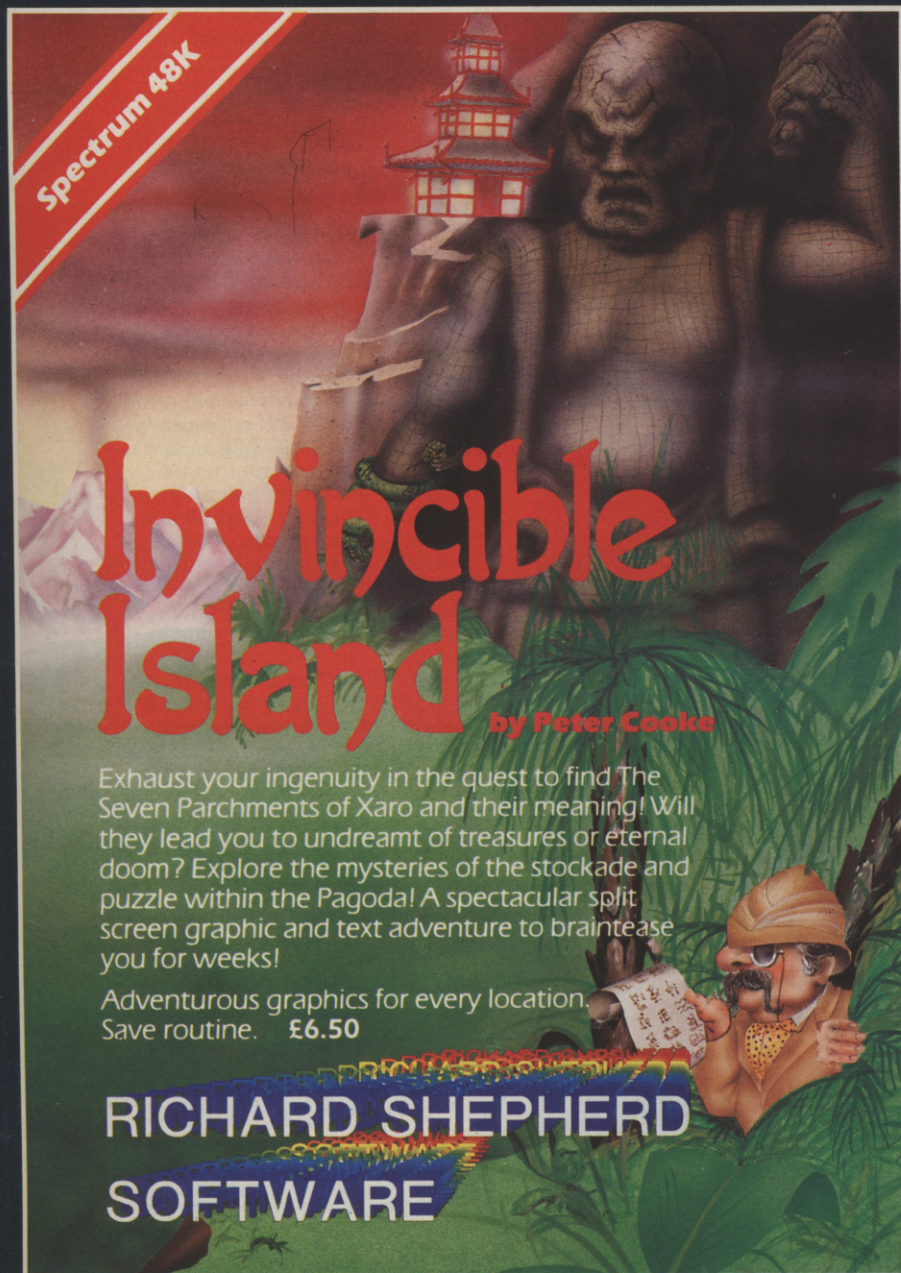
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Spectrum 48K



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by Peter Cooke

Exhaust your ingenuity in the quest to find The Seven Parchments of Xaro and their meaning! Will they lead you to undreamt of treasures or eternal doom? Explore the mysteries of the stockade and puzzle within the Pagoda! A spectacular split screen graphic and text adventure to braintease you for weeks!

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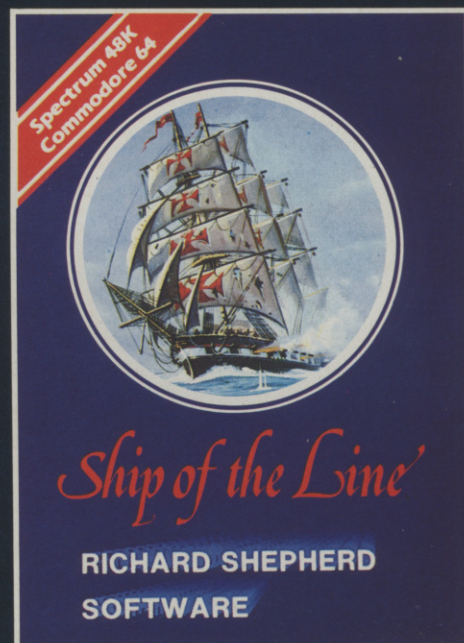
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Spectrum 48K
Commodore 64



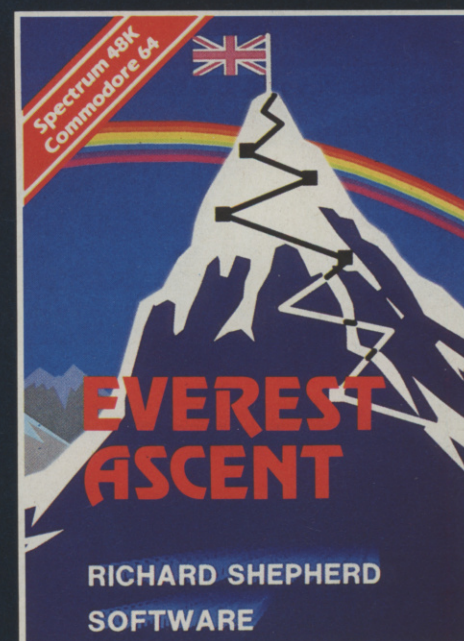
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Conquer the world's highest peak in defiance of all the obstacles, man and nature can throw at you. Survive avalanches, cross bottomless crevasses, cope with wayward Sherpas — but don't run out of supplies! £6.50

THE HOLYGRAIL

By Kevin Gardiner

For the
VIC 20

Follow the trail of the Holy Grail in this dramatic adventure game which runs on the VIC 20 with 16K.

You are King Arthur and you have been ordered by God to find the Holy Grail and put it into the glass box in the church.

All the commands that are in a usual adventure are contained in the Holy Grail, eg. *get, drop, look, examine, inventory, etc.* To save time directions can be inputted by **n** for north, **s** for south, **e** for east, **w** for west, **u** for up and **d** for down. Also **l** can be used for look and **i** for inventory. When the letter **a** is pressed, the location that you are in will be described. When you are in a location press **l** to see if there are any objects in that location.

RUNdown

Lines	Action
1-8	Sets up various flags and counters.
10-90	Sets up title screen.
110-370	Decides which subroutine to go to.
1000-1660	Prints the description of the location and sets a new location number into the flags.
1999-1092	The 'go' subroutine.
2300-2420	The 'inventory' subroutine.
2500-2540	The 'row' subroutine.
2600-2690	The 'examine' subroutine.
2700-2710	The 'swim' subroutine.
2800-2900	The 'look' subroutine.
2999-3110	The 'get' subroutine.
3600-3756	The 'drop' subroutine.
3800-3840	The 'pull' subroutine.
4000-4050	The 'remove' subroutine.
4100-4130	The 'unlock' subroutine.
4200-4230	The 'open' subroutine.
4300-4320	The 'read' subroutine.
4400-4476	The 'fight' subroutine.
4500-4590	The 'saw' subroutine.
4600-4620	The 'press' subroutine.
4700-4730	The 'insert' subroutine.
4800-4840	The 'turn' subroutine.
8000-8040	Initialisation.
10000-10056	The splitting up of the players input into a verb and a noun.
10060-10280	Deciding which location to go to.
12000-12050	The failure routine.
13000-13070	The successful end.

Conversion Clues

There should be no problem in converting this adventure to run on other computers. People with Spectrums or BBCs need to type:

```
10060 IF DI = 0 THEN PRINT "I CAN'T  
GO THAT WAY":DI=SE:GOSUB DI :  
GOTO 10000
```

```
10070 GOSUB DI : GOTO 10000
```

N.B. The numbers in the data are the notes for the song 'Smile' which are as follows.

Number	Note
209	middle f
215	middle g
219	middle a
207	low e
201	low d
195	low c
221	middle a sharp
212	middle f sharp
225	high c
228	high d
227	high c sharp

POKE 36879 Color control.
POKE 36876 Music channel.
POKE 36878 Volume control.


```

1 Z=0:W=0:R=0:Q=0:I=0:U$="" :DI=1000:V=0:Y=0:P=0:T=0:O=0:L=0:E=0:J=0:N=0:M=0:F=A
S=0
2 H=0:A=0:B=0
3 POKE36879,25:PRINTCHR$(14)
4 POKE36878,14
5 Y$="SLAMMED SHUT":T$="CROSS"
6 K$="CAN SEE A GUARD":F$="CAN SEE AN ATTENDANT"
10 PRINT"
20 PRINT"
30 PRINT"
40 PRINT"
50 PRINT"
60 PRINT"
70 PRINT"
80 PRINT"
90 PRINT"
91 FORT=105000:NEXT
95 PRINT"
99 GOSUB8000
100 GOT010000:GOT010000
105 B=B+1:IFB=5THENPRINT"CAN'T HOLD MY BREATHANY LONGER!...":GOT012000
107 PRINT"
110 IFB$="W"THENDI=NO:GOT010060
112 IFB$="S"THENDI=SO:GOT010060
113 IFB$="W"THENDI=WE:GOT010060
114 IFB$="E"THENDI=EA:GOT010060
115 IFB$="U"THENDI=UP:GOT010060
116 IFB$="D"THENDI=DO:GOT010060
117 IFB$="O"THENDI=O:GOT010060
118 IFB$="R"THENDI=R:GOT010060
119 IFB$="X"THENDI=X:GOT010060
200 IFB$="SWIM"THENGOTO2700
210 IFB$="L"THENGOTO2800
220 IFB$="GET"ORAF$="TAKE"THENGOTO2999
230 IFB$="I"THENGOTO2300
245 IFB$="A"THENGOTO10060
250 IFB$="DROP"THENGOTO3600
260 IFB$="PULL"THENGOTO3800
270 IFB$="REMOVE"THENGOTO4000
280 IFB$="UNLOCK"THENGOTO4100
290 IFB$="OPEN"THENGOTO4200
300 IFB$="READ"THENGOTO4300
310 IFB$="FIGHT"THENGOTO4400
320 IFB$="SQU"THENGOTO4500
330 IFB$="PRESS"THENGOTO4600
340 IFB$="INSERT"THENGOTO4700
350 IFB$="TURN"THENGOTO4800
360 IFB$="HELP"THENPRINT"OT ON YOUR NELLIE":GOT010000
370 PRINT" , DON'T UNDERSTAND YOU":GOT010000
1000 PRINT" , M IN A CHAPEL , CAN SEE A CROSS , HERE IS AN EXIT TO THE EAST"
1001 PRINTU$
1005 SE=1000
1010 EA=1030:WE=0:SO=0:NO=0:DO=0:UP=0
1020 RETURN
1030 PRINT" , M ON A COBBLED ROAD , SEE A CHAPEL TO THE WEST , THE ROAD CARRIES O
N SOUTH"
1035 SE=1030
1040 WE=1000:SO=1060:NO=0:EA=0:UP=0:DO=0
1050 RETURN
1060 PRINT" , M ON A COBBLED ROAD , HERE IS A MARKET TO THE EAST , A CASTLE TO I
HE WEST , "
1070 PRINT"HERE IS A FOREST TO THE SOUTH AND A ROAD TO THE NORTH , "
1075 SE=1060
1080 EA=1100:SO=1220:WE=1130:NO=1030:UP=0:DO=0
1090 RETURN
1100 PRINT" , M IN A MARKET SQUARE , HERE IS A ROAD TO THE WEST , "
1101 PRINTF$
1105 SE=1100
1110 WE=1060:EA=0:NO=0:SO=0:DO=0:UP=0
1120 RETURN
1130 PRINT" , M IN AN ENORMOUS HALL , HERE ARE EXITS EAST , WEST AND DOWN , "
1135 SE=1130
1140 DO=1160:UP=0:SO=0:NO=0:EA=1060:WE=1190
1150 RETURN
1160 PRINT" , M IN A DUNGEON , HERE IS A JAIL CELL HERE , HERE IS AN EXIT U
PWARDS , "
1165 SE=1160
1170 UP=1130:DO=0:SO=0:NO=0:EA=0:WE=0
1180 RETURN
1190 PRINT" , M IN A STORAGE ROOM , HERE IS AN EXIT TO THE EAST"
1195 SE=1190
1200 EA=1130:WE=0:SO=0:NO=0:UP=0:DO=0
1210 RETURN
1220 PRINT" , M IN A FOREST , HERE IS A LAKE TO THE WEST AND A ROAD TO THE
ORTH"
1225 SE=1220
1230 EA=0:WE=1200:NO=1060:SO=0:UP=0:DO=0
1240 RETURN
1280 PRINT" , M ON A BANK BY A LAKE , CAN SEE A BOAT , HERE IS AN EXIT TO T
HE EAST , "
1281 B=0:C=0:Z=0:Y=0
1285 SE=1280
1290 EA=1220:WE=0:SO=0:NO=0:UP=0:DO=0
1300 RETURN
1310 PRINT" , M ON AN ISLAND , ORTH , SEE A CASTLE AND EAST , SEE A CAVE , C
AN SEE A"
1311 PRINT" BOAT":Z=0:Y=1
1315 SE=1310
1320 EA=1340:WE=0:NO=1370:SO=0:UP=0:DO=0
1330 RETURN
1340 PRINT" , M IN A CAVE , HERE ARE EXITS SOUTH , WEST AND DOWN , "
1345 SE=1340
1350 WE=1310:EA=0:NO=0:SO=1400:DO=1430:UP=0
1360 RETURN
1370 PRINT" , M IN A HALL , HERE ARE EXITS EAST , SOUTH AND UP , "
1375 SE=1370
1380 SO=1310:NO=0:WE=0:EA=1460:UP=1490:DO=0
1390 RETURN
1400 PRINT" , M IN A CAVERN , THE EXIT IS NORTH , "
1405 SE=1400
1410 NO=1340:SO=0:WE=0:EA=0:UP=0:DO=0
1420 RETURN
1430 PRINT" , M IN A PIT , THE EXIT IS UP , "
1435 SE=1430
1440 UP=1340:DO=0:NO=0:SO=0:EA=0:WE=0
1450 RETURN
1460 PRINT" , M IN A ROOM , CAN SEE ANIMAL HEADS AND A FIREPLACE , HERE IS A
N EXIT , "
1465 PRINT" WEST , "
1466 SE=1460
1470 WE=1370:EA=0:NO=0:SO=0:UP=0:DO=0
1480 RETURN
1490 PRINT" , M IN A TOWER , CAN SEE THE GRAIL IN A GLASS BOX"
1495 PRINT"HERE IS AN EXIT DOWNWARDS , "
1496 PRINTK$
1497 SE=1490
1500 DO=1370:UP=0:NO=0:SO=0:WE=0:EA=0
1510 RETURN
1520 PRINT" , M IN A DARK AND COLDCELL"
1521 PRINTP$
1522 SE=1520
1530 RETURN
1540 PRINT" , M IN A FIREPLACE , HERE ARE EXITS UP AND EAST , "
1545 SE=1540
1550 EA=1460:UP=1570:DO=0:WE=0:NO=0:SO=0
1560 RETURN
1570 PRINT" , M ON A LEDGE , CAN SEE A PIECE OF BOARD NAILED TO THE STONES , "
1575 SE=1570
1576 SE=1570
1577 DO=1540:UP=0:EA=0:WE=0:NO=0:SO=0
1580 GOT010000
1590 PRINT" , M IN A PASSAGE , HERE ARE LIT CANDLES ON THE WALL , HERE ARE EXITS E
AST AND"
1591 PRINT" WEST"
1592 SE=1590
1600 EA=1000:WE=1620:NO=0:SO=0:UP=0:DO=0
1610 RETURN
1620 PRINT" , M IN A ROOM , CAN SEE A GLASS BOX , HERE IS A KEYHOLE IN THE B
OX"
1621 PRINT"HERE IS AN EXIT TO THE EAST"
1625 SE=1620
1630 EA=1590:WE=0:NO=0:SO=0:UP=0:DO=0
1640 GOT010000
1650 PRINT" , M SWIMMING UNDERWATER IN THE LAKE , CAN SEE SEASHHELLS A
ND"
1652 PRINT" STARFISH , SEE LAND ABOVE ME" B=1 C=1
1653 SE=1650
1655 UP=1280:DO=0:EA=0:WE=0:NO=0:SO=0
1660 RETURN
1999 IFB$=" "THENPRINT"O WHERE ?"
2000 IFB$="BOAT"ANDDI=1280ANDY=0THENPRINT" , M ON THE BOAT , ORTH , CAN SEE AN IS
LAND" Z=1
2001 IFB$="BOAT"ANDDI=1280ANDY=0THENGOTO10000
2005 IFB$="BOAT"ANDY=1THENPRINT" , M ON THE BOAT , MOUTH , CAN SEE A BANK" Z=1:GOT
010000
2010 IFB$="BOAT"ANDDI=1280THENPRINT" , CAN'T SEE A BOAT HERE , " GOT010000
2020 IFB$="CELL"ANDDI=1160THENPRINT"THE DOOR "Y DI=1520:GOSUB1520:GOT010000
2030 IFB$="CELL"ANDDI=1160THENPRINT" , CAN'T SEE A CELL HERE , " GOT010000
2040 IFB$="FIREPLACE"ANDDI=1460ANDW=1THENGOSUB1540:GOT010000
2050 IFB$="FIREPLACE"ANDDI=1460THENPRINT" , CAN'T SEE A FIREPLACE HERE , "
GOT01000
2055 IFB$="FIREPLACE"ANDDI=1460ANDW=0THENPRINT" DU CLUMSY IDIOT , WAS BURNT IN T
HE FIRE , "
2056 IFB$="FIREPLACE"ANDDI=1460ANDW=0THENGOTO12000
2060 IFB$="PASSAGE"ANDDI=1000THENGOTO2051
2070 IFB$="PASSAGE"ANDDI=1000THENPRINT"HERE IS NO PASSAGE HERE , " GOT010000
2080 IFB$="HOLE"ANDL=1ANDDI=1520THENGOSUB1160:GOT010000
2090 PRINT" , DO NOT UNDERSTAND YOU , " GOT010000
2091 IFB$="I"THENGOSUB1590:GOT010000
2092 IFB$="I"THENPRINT"HERE IS NO PASSAGE HERE" GOT010000
2300 IFB$="I"THENGOTO2420
2305 PRINT" , HAVE A"
2310 IFK(0)=0THENPRINTD$(0)
2320 IFK(1)=0THENPRINTD$(1)
2330 IFK(2)=0THENPRINTD$(2)
2340 IFK(3)=0THENPRINTD$(3)
2350 IFK(4)=0THENPRINTD$(4)
2360 IFK(5)=0THENPRINTD$(5)
2370 IFK(6)=0THENPRINTD$(6)
2380 IFK(7)=0THENPRINTD$(7)
2390 IFK(8)=0THENPRINTD$(8)
2400 IFK(9)=0THENPRINTD$(9)
2410 GOT010000
2420 PRINT" , HAVEN'T GOT A THING" :GOT010000
2500 IFZ=0THENPRINT" , M NOT IN A BOAT" :GOT010000
2510 IFZ=1ANDB$="NORTH"THENGOSUB1310:GOT010000
2511 IFZ=1ANDB$="SOUTH"THENDI=1280:GOSUB1290:GOT010000
2520 IFZ=1ANDB$="NORTH"ANDB$="SOUTH"THENPRINT" , HAVE BEEN ROWING ROWING FO
R"
2530 IFZ=1ANDB$="NORTH"ANDB$="SOUTH"THENPRINT"2 HOURS AND , HAVEN'T REACHED A
THING"
2540 IFZ=1ANDB$="NORTH"ANDB$="SOUTH"THENGOTO10000
2600 IFB$=" "THENPRINT" , AMINE OHAT"
2610 IFB$="CELL"ANDDI=1160THENPRINT"HERE IS A SHINING OBJECT IN THERE , " :GOT
010000
2620 IFB$="CELL"ANDDI=1160THENPRINT" , CAN'T SEE A CELL HERE , " :GOT010000
2630 IFB$="FIREPLACE"ANDDI=1460ANDW=0THENPRINT"HERE IS A ROARING FIRE IN TH
ERE , "
2640 IFB$="FIREPLACE"ANDDI=1460ANDW=0THENGOTO10000
2650 IFB$="FIREPLACE"ANDDI=1460THENPRINT" , CAN'T SEE A FIREPLACE HERE"
:GOT010000
2660 IFB$="GLASS"ANDDI=1490THENPRINT"THIS GLASS IS UNBREAKABLE , " :GOT010
000
2670 IFB$="GLASS"ANDDI=1490THENPRINT" , CAN'T SEE ANY GLASS , " :GOT010000
2680 PRINT" , HAVE EXAMINED THE" :PRINTB$:PRINT"VERY CAREFULLY AND , DID NOT NOT
ICE"
2681 PRINT" , ANYTHING SPECIAL"
2690 GOT010000
2700 IFDI=1280THENDI=1650:GOSUB1650:GOT010000
2710 PRINT"DON'T BE DAFT , CAN'T SWIM ON LAND" :GOT010000
2800 IFDI=K(1)THENPRINT" , CAN SEE A "D$(1)
2810 IFDI=K(2)THENPRINT" , CAN SEE A "D$(2)
2820 IFDI=K(3)THENPRINT" , CAN SEE A "D$(3)
2830 IFDI=K(4)THENPRINT" , CAN SEE A "D$(4)
2840 IFDI=K(5)THENPRINT" , CAN SEE A "D$(5)
2850 IFDI=K(6)THENPRINT" , CAN SEE A "D$(6)
2860 IFDI=K(7)THENPRINT" , CAN SEE A "D$(7)
2870 IFDI=K(8)THENPRINT" , CAN SEE A "D$(8)
2880 IFDI=K(9)THENPRINT" , CAN SEE A "D$(9)
2890 IFDI=K(0)THENPRINT" , CAN SEE A "D$(0)
2900 PRINT" , CAN'T SEE ANYTHING ELSE" :GOT010000
2999 IFDI=3THENPRINT" , CAN'T CARRY ANY MORE" :GOT010000
3000 IFB$="D$(0)ANDDI=K(0)THENK(0)=0:I=1+1:GOT03110
3005 IFB$="D$(2)ANDDI=1100ANDV=0THENPRINT"THE ATTENDANT STOPS ME" :GOT010000
3010 IFB$="D$(1)ANDDI=K(1)THENK(1)=0:I=1+1:GOT03110
3020 IFB$="D$(2)ANDDI=K(2)ANDV=1THENK(2)=0:I=1+1:GOT03110
3030 IFB$="D$(3)ANDDI=K(3)THENK(3)=0:I=1+1:GOT03110
3040 IFB$="D$(4)ANDDI=K(4)THENK(4)=0:I=1+1:GOT03110
3050 IFB$="D$(5)ANDDI=K(5)THENK(5)=0:I=1+1:GOT03110
3060 IFB$="D$(6)ANDDI=K(6)ANDV=1THENK(6)=0:I=1+1:GOT03110
3070 IFB$="D$(7)ANDDI=K(7)THENK(7)=0:I=1+1:GOT03110
3080 IFB$="D$(8)ANDDI=K(8)THENK(8)=0:I=1+1:GOT03110
3090 IFB$="D$(9)ANDDI=K(9)THENK(9)=0:I=1+1:GOT03110
3100 PRINT" , CAN'T DO THAT" :GOT010000
3110 PRINT"OK , " :GOT010000
3600 IFB$=" "THENPRINT"DROP WHAT ?" :GOT010000
3610 IFB$="D$(0)THENK(0)=DI:I=1+1:GOT03750
3620 IFB$="D$(1)THENK(1)=DI:I=1+1:GOT03750
3630 IFB$="D$(2)THENK(2)=DI:I=1+1:GOT03750
3640 IFB$="D$(3)THENK(3)=DI:I=1+1:GOT03750
3650 IFB$="D$(4)THENK(4)=DI:I=1+1:GOT03750
3660 IFB$="D$(5)ANDDI=1THENK(5)=DI:I=1+1:GOT03750
3670 IFB$="D$(6)THENK(6)=DI:I=1+1:GOT03750
3680 IFB$="D$(7)THENK(7)=DI:I=1+1:GOT03750
3690 IFB$="D$(8)THENK(8)=DI:I=1+1:GOT03750
3700 IFB$="D$(9)THENK(9)=DI:I=1+1:GOT03750
3710 PRINT" , HAVEN'T GOT A "B$ :GOT010000
3750 PRINT"OK , " :GOT010000
3754 IFDI=1100THENGOTO3750
3755 PRINT"THE ATTENDANT GRABS THE "D$(9) AND RUNS OFF":V=1:D$(9)="":K(9)=1:
GOT03756
3756 F$="" :GOT010000
3800 IFB$=" "THENPRINT"PULL WHAT" :GOT010000
3810 IFB$=" "ANDDI=1000THENGOTO3830
3820 PRINT" , CAN'T PULL A "B$ :GOT010000
3830 PRINT" , HAD TO PULL IT HARD BUT IT DID MOVE"
3840 U$=" , CAN SEE A PASSAGE" :R=1:GOSUB1000:GOT010000
4000 IFB$=" "THENPRINT" , WHAT ?" :GOT010000
4010 IFB$="HEADS"ANDDI=1460THENPRINT"OK , " :W=1:GOT010000
4015 IFB$="TAILS"ANDK(2)=0THENPRINT"OK , " :S=1:GOT04050
4020 IFB$="TAILS"ANDK(2)=0THENPRINT" , CAN'T DO THAT YET" :GOT010000
4030 PRINT" , CAN'T "AS" A "B$ :GOT010000
4050 PRINT" , CAN SEE A HOLE , N THE HOLE IS A BUTTON" :GOT010000
4100 IFB$=" "THENPRINT" , WHAT ?" :GOT010000
4110 IFB$="CHEST"ANDK(7)=0ANDK(8)=0THENPRINT"CLICK , " :T=1:GOT010000
4115 IFB$="CHEST"THENPRINT" , CAN'T DO THAT YET" :GOT010000
4120 IFB$="GLASS BOX"ANDK(7)=0THENPRINT"CLICK!!" :P=1:GOT010000
4130 PRINT" , CAN'T "AS" A "B$ :GOT010000
4200 IFB$=" "THENPRINT" , WHAT ?" :GOT010000
4210 IFB$="CHEST"ANDT=1ANDK(8)=0THENPRINT" , CAN SEE A "D$(5):K(5)=DI:Q=1:GOT010
000
4220 IFB$="CHEST"THENPRINT" , CAN'T IT'S LOCKED" :GOT010000
4225 IFB$="GLASS BOX"ANDDI=1490ANDJ=1THENPRINT"OK , " :F=1:GOT010000
4226 IFB$="GLASS BOX"ANDDI=1490ANDJ=0THENPRINT"THE GUARD THROWS ME BACK" :GOT0
10000
4227 IFB$="GLASS BOX"ANDDI=1490THENPRINT" , CAN'T DO THAT YET" :GOT010000
4228 IFB$="GLASS BOX"ANDN=0THENPRINT" , CAN'T DO THAT YET" :GOT010000

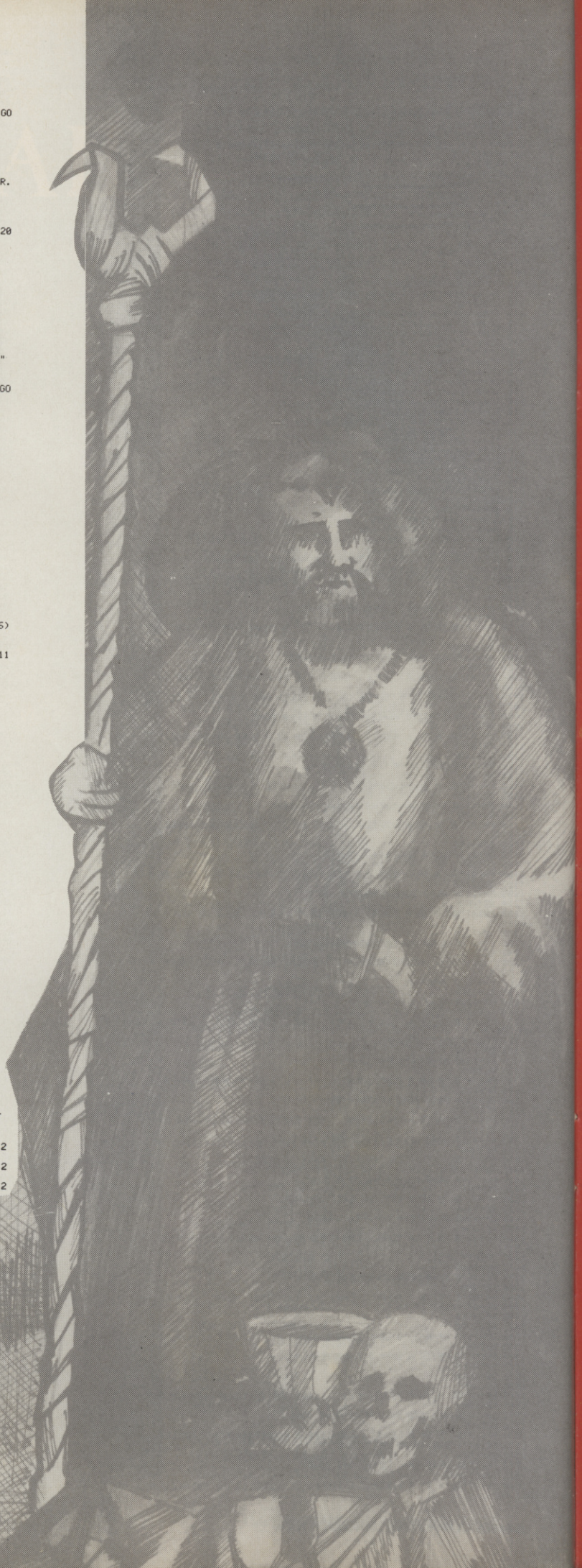
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4229 IFB$="GLASS BOX"ANDDI=1620ANDH=1THENPRINT"OK..":M=1:GOTO10000
4230 PRINT": CAN'T OPEN A ":PRINT$:GOTO10000
4300 IFB$="THENPRINT$ WHAT ?":GOTO10000
4310 IFB$="BOOK"ANDD=1ANDK(5)=0THENPRINT":T SAYS TURN KEY LEFT THEN RIGHT!":GO
T010000
4315 IFB$="BOOK"ANDD=0THENPRINT": DON'T HAVE A BOOK":GOTO10000
4320 PRINT": CAN'T "P$":P$:GOTO10000
4400 IFB$="THENPRINT": CAN'T FIGHT MYSELF":GOTO10000
4405 IFB$="ATTENDANT"ANDDI<1100THENPRINT": CAN'T SEE HIM HERE":GOTO10000
4410 IFB$="ATTENDANT"ANDK(9)=1THENPRINT": CAN'T SEE HIM":GOTO10000
4420 IFB$="ATTENDANT"ANDK(3)=0ANDDI=1100THENPRINT": WAS GOOD BUT HE WAS BETTER.
IE SLIT"
4430 IFB$="ATTENDANT"ANDK(9)=0ANDDI=1100THENPRINT"MY THROAT":GOTO12000
4440 IFB$="ATTENDANT"ANDDI=1100THENPRINT": HAVE NO SWORD.. SEE BLOOD SQUIRT"
4445 IFB$="ATTENDANT"ANDDI=1100THENPRINT"EVERYWHERE"
4449 IFB$="ATTENDANT"ANDDI=1100THENPRINT": SEEMED TO HAVE BEEN STABBED":GOTO120
00
4450 IFB$="GUARD"ANDJ=1THENPRINT"HE IS ALREADY DEAD":GOTO10000
4451 IFB$="GUARD"ANDK(3)=0ANDK(4)=0ANDK(8)=0ANDDI=1490THENGOTO4470
4452 IFB$="GUARD"ANDK(3)<0ANDK(4)=0ANDK(8)=0ANDDI=1490THENGOTO4475
4453 IFB$="GUARD"ANDK(3)=0ANDK(4)<0ANDK(8)=0ANDDI=1490THENGOTO4475
4454 IFB$="GUARD"ANDK(3)=0ANDK(4)=0ANDK(8)<0ANDDI=1490THENGOTO4475
4455 IFB$="GUARD"ANDK(3)=0ANDK(4)<0ANDK(8)=0ANDDI=1490THENGOTO4475
4456 IFB$="GUARD"ANDK(3)<0ANDK(4)=0ANDK(8)=0ANDDI=1490THENGOTO4475
4457 IFB$="GUARD"ANDK(3)<0ANDK(4)<0ANDK(8)=0ANDDI=1490THENGOTO4475
4459 IFB$="GUARD"ANDDI<1490THENPRINT": CAN'T SEE HIM HERE":GOTO10000
4460 PRINT": DO NOT UNDERSTAND YOU":GOTO10000
4470 PRINT": NOW! THE GUARD LIES DEAD ON THE FLOOR":J=1:K$="":GOTO10000
4475 PRINT": WALKED UP TO HIM AND STARTED TO FIGHT, FOOPS, MADE A MISTAKE"
4476 PRINT":AND HE CUT MY HEAD OFF":GOTO12000
4500 IFB$="THENPRINT$ WHAT ?":GOTO10000
4510 IFB$="BARS"ANDK(1)=0ANDDI=1520THENPRINT"OK..":P$="":CAN SEE A HOLE":L=1:GO
T04590
4525 IFB$="BARS"ANDK(1)<0ANDDI=1520THENPRINT": CAN'T DO THAT YET":GOTO10000
4526 IFB$="BARS"ANDK(1)=0ANDDI<1520THENPRINT": CAN'T SEE ANY BARS":GOTO10000
4527 IFB$="BARS"ANDK(1)<0ANDDI<1520THENPRINT": CAN'T DO THAT YET":GOTO10000
4530 PRINT": DON'T UNDERSTAND YOU":GOTO10000
4590 DI=1160:GOSUB1160:GOTO10000
4600 IFB$="THENPRINT$ WHAT ?":GOTO10000
4610 IFB$="BUTTON"ANDDI=1570ANDS=1THENPRINT"CLICK":E=1:GOTO10000
4615 IFB$="BUTTON"ANDDI<1570ANDS=0THENPRINT": CAN'T DO THAT YET":GOTO10000
4620 PRINT": DON'T UNDERSTAND YOU":GOTO10000
4700 IFB$="THENPRINT$ WHAT ?":GOTO10000
4710 IFB$="KEY"ANDDI=1620ANDK(7)=0THENPRINT"OK..":H=1:GOTO10000
4720 IFB$="KEY"ANDDI<1620ANDK(7)<0THENPRINT": CAN'T DO THAT YET":GOTO10000
4721 IFB$="GRAIL"ANDDI=1620ANDM=1THENGOTO13000
4722 IFB$="GRAIL"ANDDI<1620ANDM=0THENPRINT": CAN'T DO THAT YET":GOTO10000
4730 PRINT": DON'T UNDERSTAND YOU":GOTO10000
4800 IFB$="THENPRINT$ IT IN WHICH":PRINT" DIRECTION":GOTO10000
4810 IFB$="LEFT"ANDDI=1620ANDH=1THENPRINT"OK..":A=1:GOTO4830
4820 IFB$="RIGHT"ANDDI=1620ANDH=1THENPRINT"OK..":B=1:GOTO4830
4830 IFB=1ANDH=1THENN=1:GOTO10000
4831 IFB=1ANDH=0THENGOTO10000
4832 IFB=0ANDH=1THENGOTO10000
4940 PRINT": DON'T UNDERSTAND YOU":GOTO10000
8000 D$(1)="SAW":D$(2)="HAMMER":D$(3)="SWORD":D$(4)="SHIELD":D$(5)="BOOK":D$(6)
="GRAIL"
8010 D$(7)="KEY":D$(8)="SUIT OF ARMOUR":D$(9)="GOLD BAR":D$(0)="CHEST"
8020 K(1)=1370:K(3)=1520:K(2)=1100:K(4)=1400:K(5)=1:K(6)=1490:K(7)=1570:K(8)=11
90
8030 K(9)=1430:K(0)=1650
8040 RETURN
10000 INPUT"WHAT SHALL I DO NOW?":C$
10010 FORX=1 TO LEN(C$)
10020 IF MID$(C$,X,1)="" THENGOTO10040
10030 NEXTX:AF=C$:GOTO10055
10040 AF=LEFT$(C$,X-1)
10050 B$=RIGHT$(C$,LEN(C$)-X)
10055 IFC=1THENGOTO105
10056 GOTO107
10060 IFDI=0THENPRINT": CAN'T GO THAT WAY":DI=SE:PRINT"N":GOTO10070
10070 IFDI=1000THENGOSUB1000:GOTO10000
10080 IFDI=1030THENGOSUB1030:GOTO10000
10090 IFDI=1060THENGOSUB1060:GOTO10000
10100 IFDI=1100THENGOSUB1100:GOTO10000
10110 IFDI=1130THENGOSUB1130:GOTO10000
10120 IFDI=1160THENGOSUB1160:GOTO10000
10130 IFDI=1190THENGOSUB1190:GOTO10000
10140 IFDI=1220THENGOSUB1220:GOTO10000
10150 IFDI=1250THENGOSUB1250:GOTO10000
10160 IFDI=1280THENGOSUB1280:GOTO10000
10170 IFDI=1310THENGOSUB1310:GOTO10000
10180 IFDI=1340THENGOSUB1340:GOTO10000
10190 IFDI=1370THENGOSUB1370:GOTO10000
10200 IFDI=1400THENGOSUB1400:GOTO10000
10210 IFDI=1430THENGOSUB1430:GOTO10000
10220 IFDI=1460THENGOSUB1460:GOTO10000
10230 IFDI=1490THENGOSUB1490:GOTO10000
10240 IFDI=1520THENGOSUB1520:GOTO10000
10250 IFDI=1540THENGOSUB1540:GOTO10000
10260 IFDI=1570THENGOSUB1570:GOTO10000
10270 IFDI=1590THENGOSUB1590:GOTO10000
10280 IFDI=1650THENGOSUB1650:GOTO10000
10290 PRINT"HUH":GOTO10000
12000 FORT=105000:NEXT
12005 PRINT"YOU FAILED IN FINDING THE HOLY GRAIL,BETTER LUCK NEXT TIME"
12010 PRINT"XXXXXXXXXXPLAY AGAIN"
12020 GETP$:IFP$=""THEN12020
12030 IFP$="Y"THENGOTO1
12040 IFP$="N"THENEND
12050 GOTO12020
13000 FORT=101000:NEXT
13010 PRINT"XXXXXXXXXXCONGRATULATIONS"
13015 PRINT"XXXXXXXXXX"
13020 PRINT"XXXXXXXXXX YOU HAVE COMPLETED THEADVENTURE..":PRINT"XXXXXXXXXX HAT DESERVES A PAT
ON THE":
13021 PRINT"BACK"
13030 DATA209,209,215,219,215,209,207,201,207,207,209,215,209,207,201,195,201,2
01,207
13040 DATA209,201,201,207,209,215,215,219,221,212,212,215,219,221,221,225,228,2
25,221
13050 DATA219,215,221,221,225,227,225,221,219,215,219,219,221,219,221,219,215,2
09,215
13060 DATA215,215,201,219,219,237,232,232,232,0
13070 FORT=1060:REDA:POKE36876,A:FORF=1 TO300:NEXTF:NEXTT

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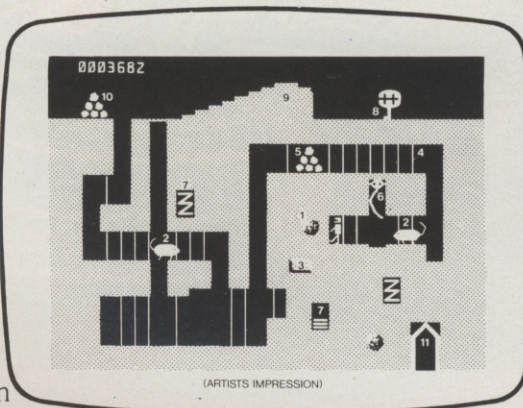
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All the time the Gremlin (8) is busy digging it's way through your waste earth pile (9) to reach the entrance to your mine. Once it does you have no



ACTUAL ZX-81 SCREEN DISPLAY

escape!! – so you must stop it getting there by returning to the surface to replenish the main mound (9) with the smaller pile of earth which appears on the surface as you dig (10). The deeper you dig the more points you score –

but the further you have to go to replenish that mound! Once all nuggets have been collected, a cave opens (11) allowing you to pass through to the next stage – if you can reach it! This gives you more rats – but less snakes to destroy them with!!

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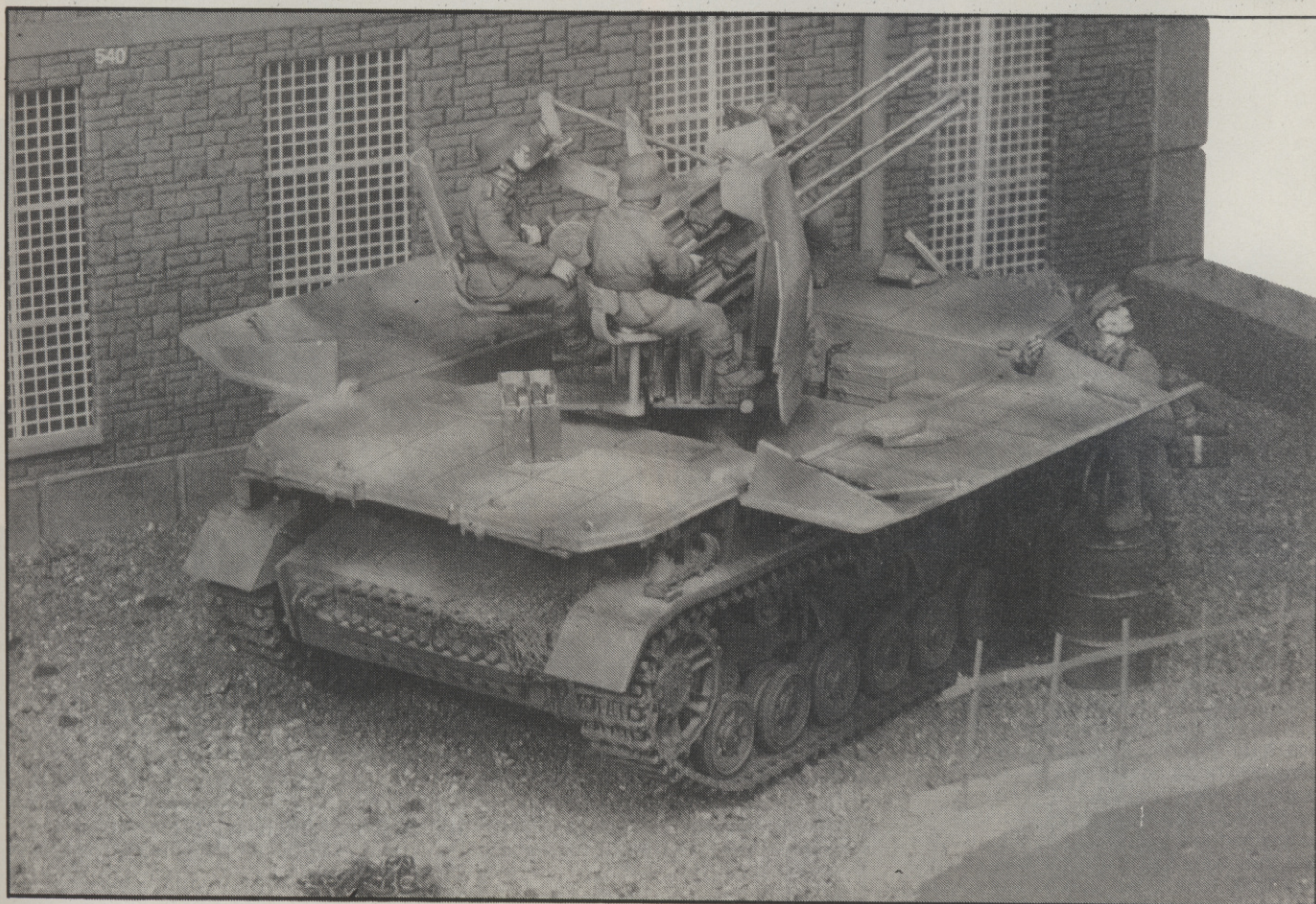
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WARGAMING



From Rome to RAM

War has been a human pursuit since the time when one tribe took exception to habits of their neighbours, and decided to educate them by wiping them out!

As human societies developed cities and nations they discovered new reasons to attack their neighbours, new ways of killing them, and new ways of protecting themselves from death and destruction. No longer was it a matter of individuals fighting against other individuals, war became a subject for massed forces. Slowly came the realisation that if a bit of thought was applied to warfare then it was possible to beat the enemy by out-maneuvring them rather than by meeting them head on. The science of strategy and the art of tactics were born.

In the beginning

With the scientific abstraction of warfare came the inevitable translation into a game. In India Chess became the teaching tool for aristocratic warlords, while in China and Japan the emphasis was placed on territorial games such as Go. In the West there is no doubt that the Egyptian, Greek and Roman Empires had various wargames, but these were lost in

the Barbarian invasions of the fifth century. Chess, carried from India to the Eastern Roman Empire, became the wargame of the West.

Nothing much happened in wargaming for many centuries, Chess continued to be the mainstay of strategic teaching despite the changing nature of warfare. But with the Renaissance came the great leap forward: toy soldiers.

At first they were just toys and owned by the children of the rich in ones or twos — a sort of boy's doll. But children of the very rich began to realise that if they had large numbers of these toy soldiers they could play out the battles that their parents were fighting for real. The soldiers got smaller and the toy armies got larger. Teachers began to see the educational possibilities for young princes and toy armies became common in the nurseries of Europe. The young Frederick the Great is said to have had an army of over 2,000 figures, while Louis XIV of France had his army made out of solid silver.

In the late 18th century rules began to be written to cover various forms of wargames. Helwig, the Master of Pages to the Duke of Brunswick, introduced the concept that one figure could represent not one man but a unit. And in the early

19th century the Von Reisswitzes (father and son) brought in the use of dice to give a controlled random element in wargames. They also invented the *Kriegspiel* in which each side has only limited information about the enemy — a technique that is used in military wargaming to this day (the old game of Battleships is a very basic form of *Kriegspiel*).

In 1880 Lieutenant Charles Totten of the US army published a game *Strategos*, which was a cross between Chess and the *Kriegspiel*. All the elements of modern wargaming were now developed.

Books to borrow or buy

However, to date all wargames had been used primarily as teaching tools. Even *Strategos* was 'for the education of civilians in the principles of modern warfare'. In 1913 the father of modern wargaming (with the emphasis on gaming) published his most important book on the subject entitled '*Little Wars*'. The author was the famous Herbert George Wells, who also wrote such lesser works as '*War of the Worlds*' and the '*Time Machine*'.

In '*Little Wars*' H. G. Wells set out rules



for the playing of battles using Britain's miniature soldiers. The movement was very basic, melees were settled by simple numerical superiority, and gunfire results were produced by using guns that fired wooden pellets! The less informed of the general public think that this is how wargames are still played. They're not.

But a year later the 'War to end all wars' was fought. While it proved completely unsuccessful in ending all wars it did end nearly all wargaming for thirty years. In the horrendous slaughter of World War I people had seen generals use their troops as if they were just toy soldiers — 'knock over 1,000 today, they can be replaced by another thousand tomorrow'. This callous attitude led to an abhorrence of all things military, whether upon the battlefield or on the playing board.

The Second World War ended this situation. It was a crusade of democracy against Facism; it proved that ignoring military problems did not make them go away; and most importantly it was a total victory — this war was won so all wars were winnable, the ultimate vindication.

After the Second World War wargaming went through a massive growth period, notably from the early '60s onwards. Figure wargaming continued to be an important part of the hobby, but it was gradually overtaken by board wargaming. Modern board wargames began with the invention and sale of *Tactics* by Charles S. Roberts in 1953. He founded a company called Avalon Hill, which is still a Great Power in the wargaming world today.

Another major wargames producer was Simulations Publications Inc (SPI), now unfortunately defunct. They produced a monthly magazine which included a wargame in every issue, as well as a regular output of standard wargames. Unfortunately, they over-reached themselves by producing a series of monster games (5' by 5' boards, 10,000 playing pieces, 100 hours to play) which cost the earth to make and didn't sell. They were subsequently taken over by TSR (Tactical Studies Rules) which had come up through another line of wargaming.



TSR was formed to publish wargames rules for fantasy miniatures. As a sideline they invested a game called *Dungeons and Dragons*, a role playing game where players could take on the role of an adventurer in a fantasy world. This genius idea earned millions for the inventors, and D&D (as it's known) is still a very popular game — it is the base from which most computer adventure games evolved.

The Modern Wargame

So where do computer wargames fit into all this? Well, computer wargaming is still very much in its infancy. Some games

have been produced, but few can be called classics yet. One problem is, believe it or not, the amount of storage space available in modern home computers. 16K is not sufficient, 32K will just about do, but the really challenging games are going to require 64K of memory or more. Only recently have machines of this size begun to appear, but by next year they should be common. Then wargaming on computers will really take off.

In next month's edition of *Games Computing* 'ROME to RAM' will take you through the initial steps involved in programming wargames on your home micro computer. Ask your newsagent to reserve a copy for you.

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video games

FROGGER ATARI VCS

Persuading your friendly frog to cross a road and then a river is no easy task when you have to dodge trucks, cars, vans, and leap on to logs, lily pads and drift wood.

The idea is to move the frog which you control from the pavement to the home bays on the opposite side of the river bank, with another strip of pavement in between acting as a stepping stone on your journey.

Making matters more traumatic you have only 30 seconds in which to get your frog to the safety of the home bays.

Using the joystick controllers to operate the game you must try and guide your frog through the perilous lanes of traffic dodging the cars and trucks. When you first pick up the joystick you're bound to think that 'this is a doddle', but a few minutes later and you'll be cursing this marvellously simple, yet so tricky game! For somehow, the traffic seems to pick up speed just when you think it's safe to cross the road, and then you find your frog 'splooched' into a green mess on the road surface. And believe it or not, that's the easiest part of the game to play.

If you make it safely to the opposite pavement it's even tougher to survive. You have to use good timing and quick thinking to leap on to the alligators, diving turtles and logs. Watch out for the blue turtles because they are the divers and unless you hop on and off them very quickly you'll find your frog will be treading water — and not very successfully. Three frogs splooched and that's it, the game's over.

This game is deceptively difficult to play. Often you think you have only just cleared a car or a lorry only to find you have caught the edge of it and so die. There are many features in Frogger which make it an extremely challenging and interesting game to play that is almost bound to keep you tied to the telly until you have mastered the Frogger technique.

Full marks must go to Parker for producing such a comprehensive game which sticks very closely to the original arcade games yet compiles with the constraints of the memory limitations which the Atari VCS dictates.

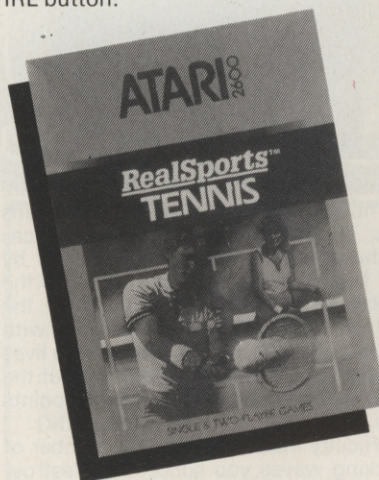
Made by Parker Video
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TENNIS ATARI VCS

You won't get tennis elbow when you plug into this Real Sport VCS game but are more likely to be struck down with a severe case of joystick jitters.

One of the first games to be put onto computer/VCS systems was the bat and ball type of game. Atari's TENNIS cartridge is an extension of the original idea but has been vastly improved to get the most out of the concept. And it has done so admirably. What you see on screen is a perspective view of a tennis court, minus all the court lines for the tram and service areas. At the top of the screen is a score board recording the games (as they are played and who wins each), the set being played and the score of each game. At either end of the court is a tennis player (just as well), one wearing a pink shirt, the other sporting blue.

It is possible to play against the computer, but it's far more fun to rope a friend into being your opponent and battling it out on the court. We found that the best tactic to adopt was to place the body of your player in front of the ball as it is being played to you, rather than lining up the player's tennis racket in order to hit the ball directly. To hit the ball you use the FIRE button.



At first you can try the slow speed to develop your tennis technique and once mastered there'll be no stopping you on the fast speed games. Even if your forte is space arcade style games I am positive

this game will enthrall you into playing it with the relentless verve that you normally associate with arcade game players.

Programming wise the quality is very good. Once again the Atari devoted programmers have used all their cunning and expertise to produce a game of fast action and good graphics, right down to the shadow of the ball as it is in play and appropriate sound to boot. And when the two players move up to the net the action is scorching hot and almost as good as watching the top notch players at Wimbledon! On sale from standard Atari retail outlets.

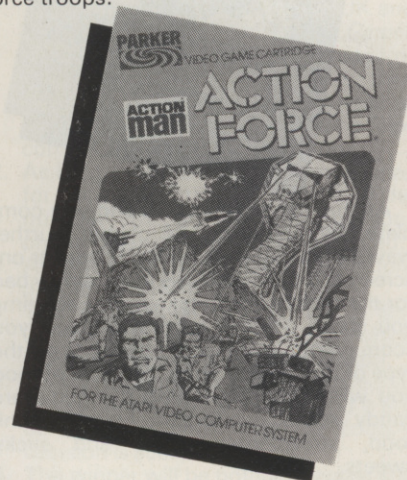
Made by Atari
Price: £19.99

ACTION FORCE ATARI VCS

Action stations all action force followers. . . .

Here's a video game just for you. The evil minded Baron Ironblood is bent on destroying Action Force in a bid to rule the world. You must stop him from doing so and save the world from a pending reign of terror and oppression.

Baron Ironblood has devised a super weapon system taking the shape of a giant computer controlled Cobra. This weapon shoots laser beams and the only way to put an end to its wicked capers is to shoot out the monster creature's eyes which form the nerve centre of the beast. The Cobra's metal body is impenetrable by normal bullets or laser beams. Ironblood's first course of action in his masterplan is to smash the training camp of Action Force troops.



If you want to win the game you must destroy the Cobra, but you'll find that if you thwart Baron Ironblood's first attempt at world domination he'll make a speedy come-back with a Mark II version of the Cobra which the Action Force troops must attack in order to survive.

This is a fun death and destruction game (which sounds incongruous but is actually true) and makes a very pleasant change from all the space games thrown down your throats. And with the current publicity given to Action Force (who came up with the idea of the very successful Action Man doll) along with the comic and dolls of the same name, this new cartridge should do well. It's certainly an enjoyable game to play.

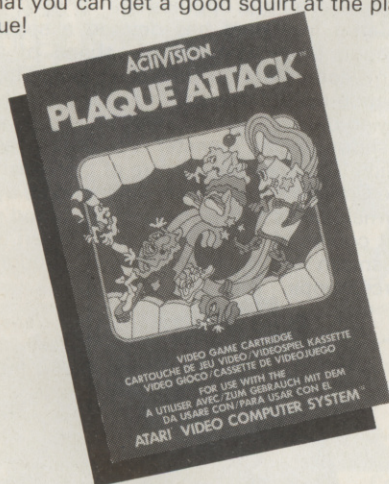
Made by Parker
Price: £29.95

PLAQUE ATTACK ATARI VCS

Preventing tooth decay is the job in hand in this unlikely sounding game called Plaque Attack.

It makes a great change from the space theme games which have saturated the shop shelves over the past 18 months. Whoever dreamed up this idea for a computer game must have applied some lateral thinking to the ever popular space invaders game. In Plaque Attack your laser gun becomes a tube of toothpaste, your defence bases are a row of top and bottom teeth, and the alien invaders become plaque. Yuk!

Using the joystick controls you operate the tube of toothpaste and it's up to you to destroy the pieces of plaque by squirting a blob of toothpaste at any lurking plaque pieces. The plaque has a nasty habit of attacking both rows of teeth at the same time (more or less) so you must try and develop peripheral vision in order to keep a check on the position of the plaque. Your joystick can make the tube of toothpaste turn upside down (depending on which way you are initially facing) so that you can get a good squirt at the plaque!



As the game progresses and you complete the first wave of plaque, further waves of decay-causing foods appear on-screen and these become increasingly bad for the teeth if left to take root. Each time you shoot down a particle of food you score points — the score depends on the type of food you destroy. The sort of food you will encounter during the game are candy sticks, ice cream cornets, junk food, strawberries, chips and sticky sweets.

A leaflet comes with the cartridge and is called the Dental Defense Manual; this proved to be very helpful in understanding the basics of the game and working out a good strategy to adopt if you don't want to wind up with NHS dentures or an acute case of gum disease. If nothing else, Plaque Attack will probably put you off sweets for life. And if cleaning your teeth has never been a strong point of yours there's a short, amusing cartoon sketch which tells you a few facts about tooth decay and how *not* to lose **YOUR* teeth.

But apart from the moral of the story the game itself is a delight to play, offering a challenging alternative to the many space games on sale for the Atari VCS. You'll find Plaque Attack in the usual Atari retail outlets, such as some large department stores, and high street elec-

trical chain stores. Some people reckoned they should also be on sale in dental surgeries but that idea didn't go down too well in the office!

Made by Activision
Price: £29.95

GALAXIAN ATARI VCS

Atari has come up with a small gem in this version of the original arcade game which features swooping aliens of several different types. You, the player, of course have to destroy them.

If that sounds familiar to you, you'll be right in thinking that Galaxians is a variation on the old theme of space invaders. But the green meanies in this game are tremendously tougher than those filling the screen in space invaders.

When you switch on the game you'll see the frightening sight of four different types of alien. At the very top of the screen are Flagships, next row down are the Escorts whose job it is to protect the Flagships. Next row down are the Emissaries followed by three rows of Drones. Your initial task is to wipe out the first and subsequent waves of different invaders. You have to do it all at once.

It's not as easy as it sounds though, because the aliens have a nasty, unnerving habit of suddenly swooping down towards your laser gun in strict formation and destroy your laser gun in a Kami-Kazi style death dive. Be warned, more often than not it works! Be careful when your firing base is positioned either to the extreme left or right of the screen. Although the instruction booklet supplied with the cartridge tells you these are safe spots, they're not. On occasions the aliens will dive towards your gun and destroy it.



Another important thing to watch are the numerous bombs which the aliens drop. These rain down in random places on the screen and must be avoided by your laser base. If not, contact with the bombs ensure instant destruction of the base. In total you have three lives with which to play during the game. Extra lives are given at certain stages throughout the game awarded on a high score points basis.

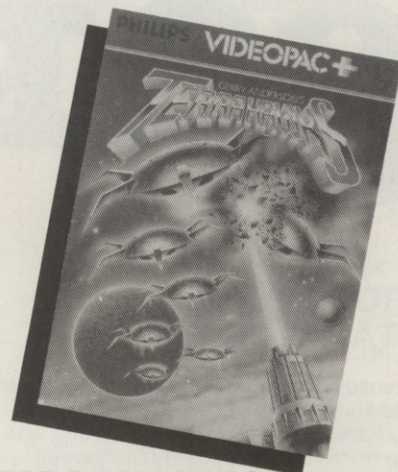
Difficulty increases with the number of attacking waves you succeed in destroying, marked by faster screen action and many more bombs being released from the aliens' special hatches.

Considering the limitations of the Atari VCS and other similar systems the graphics and speed of Galaxians is of a

high standard. It certainly proves to be an addictive play and is much more interesting than the space invader game which it came from. Definitely a game to keep you out of the kitchen while Mum cooks the Christmas dinner.

Produced by Atari itself, Galaxians is on sale at all the normal retail outlets and High Street electrical chain stores.

Made by Atari
Price: £29.99



TERRAHAWKS PHILIPS G7000

Under attack from the evil alien forces of Commander Zelda is the nerve centre of the Terrahawks whose sole reserve is to defend the earth from dangerous space enemies.

The Terrahawks' highly trained men use a specially equipped energy laser beam to shoot down Zelda's flying saucers before they release deadly rockets. During the first part of the game these rockets aren't too difficult to deal with. But when you progress to the second wave in the attack Zelda's mother ship calls up saucers which release more deadly Antimatter Mines. These have a special computer device designed to home in on the Terrahawks moveable energy base.

If you manage to survive the attack a further battle in the third phase ensues in which you have to fight off the deadly green Anihilators. These weapons are Zelda's penultimate resource and are extremely sneaky. They descend from her mother ship but beware, they don't explode on contact with the ground. On touchdown they slide along the ground towards your laser base exploding on contact with you. The best way to get rid of these nasties is to blow them up during their descent.

But don't think you can stop there. Zelda's last resort is to send her nucleonic space mines in search of your laser firing base. At the same time all the other previously encountered weapons appear on the screen and the Terrahawks nest is getting swamped by the attackers. Only the very fastest of action can get you out of the many tight spots that you'll find your energy laser beam gets into.

Once you've discovered your playing technique you just play away through the different attack waves until your energy firing station is destroyed — then that's it, the game's up.

Made by Philips
Price: £27.95



COMPETITION 1

COMPETITION 2

And now for the Competition itself

This is a quick and easy task for you to complete if you want to win a Vectrex System.

Below you'll see two pictures of the covers of one of the games produced for the Vectrex. We've been a bit sneaky here at *Games Computing* and have blocked out some of the elements in the picture on the right. So it's a sort of spot the difference competition. The pack pictured on the left is complete and you must note down the 10 things missing from the Vectrex pack on the right.

When you've sorted them out send in the coupon, stuck on the back of a postcard to VECTREX/GAMES COMPUTING COMPETITION at ASP Ltd, 145 Charing Cross Road, London WC2E 0HH, or after the 19th December to 1 Golden Square, London W1. In case you're wondering why there are two addresses it's because *Games Computing's* publishers Argus Specialist Publications is moving offices at the time mentioned above.

Fill in the form below and send it to us. Good luck and happy hunting!

Win a Super Vectrex System

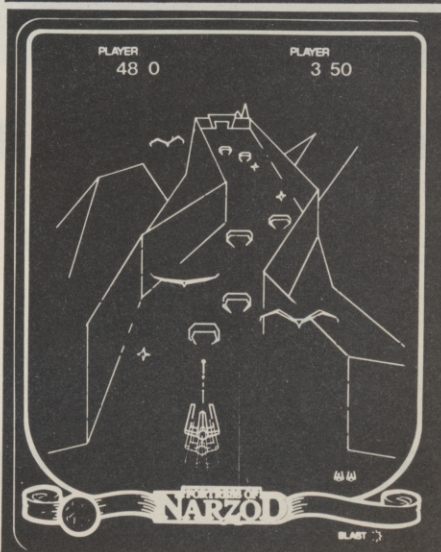
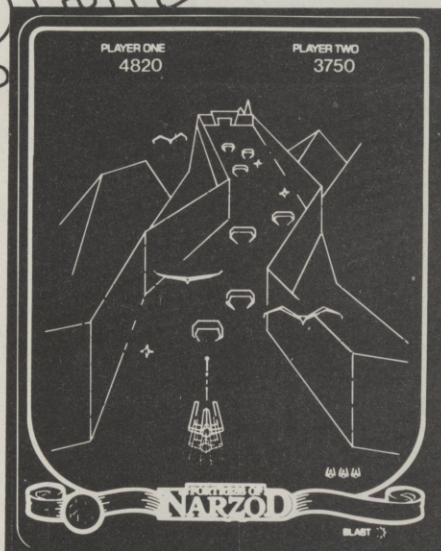
More competitions with piles of prizes up for grabs in the launch issue of *Games Computing*.

Here's a chance in a life-time to win your own Vectrex System reviewed in this issue's feature on 'Toys for Christmas'. Since this game playing system was first brought out about a year ago it has grown rapidly in popularity and provides a superb alternative to the VCS, Intellivision or Colecovision machines. You don't need to plug it into the telly (something which your Mum and Dad will probably be thankful for). Instead it's a free standing micro processor controlled machine which you plug straight into a normal power point.

Software Galore

There's a huge range of software on sale for use with the Vectrex System which won't damage your wallet too much. The games are priced between £11 and £25. The Vectrex works differently from other games systems in that the lines displayed on the phosphor screen are vectorgraph lines and not 'dots' which form blocks on a screen. For that reason each game played on the Vectrex consists of linear pictures only, yet despite that they give a marvellous effect of 3D because they are drawn in perspective.

One drawback is that the screen only displays graphics in black and white, but Vectrex has overcome that by producing games with coloured overlays to place over the system's screen giving it much more variety and depth. Making the system even more interesting is the forthcoming launch of a pair of 3D goggles which make a tremendous difference in realism to the games. News of the goggles' availability will be reported in *Games Computing* as soon as we get wind of them. Turn to our report on MIJID for more details.



Competition Rules

1. This competition is open to all UK and Northern Ireland readers of *Games Computing*, except employees of Argus Specialist Publications Ltd, their printers and distributors, employees of Milton Bradley Ltd, or anyone else connected with the competition.
2. As long as the correct coupon is used for each entry, there is no limit to the number of entries per person, photocopies of it will not be accepted.
3. All entries must be postmarked before January 31, 1984.
4. The prize will be awarded to the first correct entry picked at random which satisfies the rules of the competition.
5. No correspondence will be entered into with regard to the results and it is a condition of entry that the Editor's decision is accepted as final.
6. The winner will be notified by post and the results will be published in a future issue of *Games Computing*.

Name

Address

Telephone

Differences

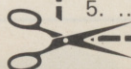
1. 6.

2. 7.

3. 8.

4. 9.

5. 10.





MOON RESCUE

Runs on a SPECTRUM



By David Harwood

In the year 2020 an exploratory space mission to the far side of the moon was aborted leaving stranded astronauts with only their backpacks to survive until a rescue team arrived.

Your job in this game of skill and daring is to take the part of the rescue team and safely pick up the stranded men from the moon's surface, at the same time avoiding the many meteors that float above the moon. You must rescue as many men as possible by guiding your spaceship and releasing a ladder from the special 'help hatch' to the surface of the moon. When correctly positioned, the stranded astronauts can climb up the ladder into the safety of the ship. But BE CAREFUL, if the meteors make contact with either the ladder or your rescue ship a massive explosion will blast you to smithereens! Not a happy ending to the rescue mission.

Playing the Game

To get the game rolling the keys to use are the '1' to move to the right, the '2' to move your ship to the left, '9' to move the ship downwards, 'O' to move it upwards, '3' to release the ladder and '4' to make the man climb the ladder. A word of advice, REMEMBER to hold down key '4' until the ship has been reached, and when successfully done you will be serenaded with a well known melody!

In total you have three ships to play with and the game ends when all three have been destroyed. One of the game's features is that there is a running total

displayed throughout the game. The points system works on the basis of 100 points awarded for each astronaut rescued. For details on the user defined graphics operation see the program itself.

RUNdown

Line	Action
100	Sets colour.
105	Program initialise.
110	Sets up user defined graphics.
115	Sets up array used for co-ordinates of meteors.
123-135	Draws moon surface.
140-150	Program initialise.
155	Prints score.
160	Prints man on moon surface.
165	Moves ship depending on key pressed.
175	Prints ship.
180	If the ship is above the man and the '3' key is pressed, goes to routine to print ladder.
185	Checks to see if ladder is present.
195	Moves man up ladder.
200	Detects if man has reached ship or not.
205-230	Prints meteors and checks if ship is blown up.
240-270	Routine to print ladder.
275	Man reaching ship routine.
280-290	Updates points. Returns to main program.
295-360	Ship blowing up routine. If you have no more ships left, will start playing tune.
365-480	Data for user defined graphics.

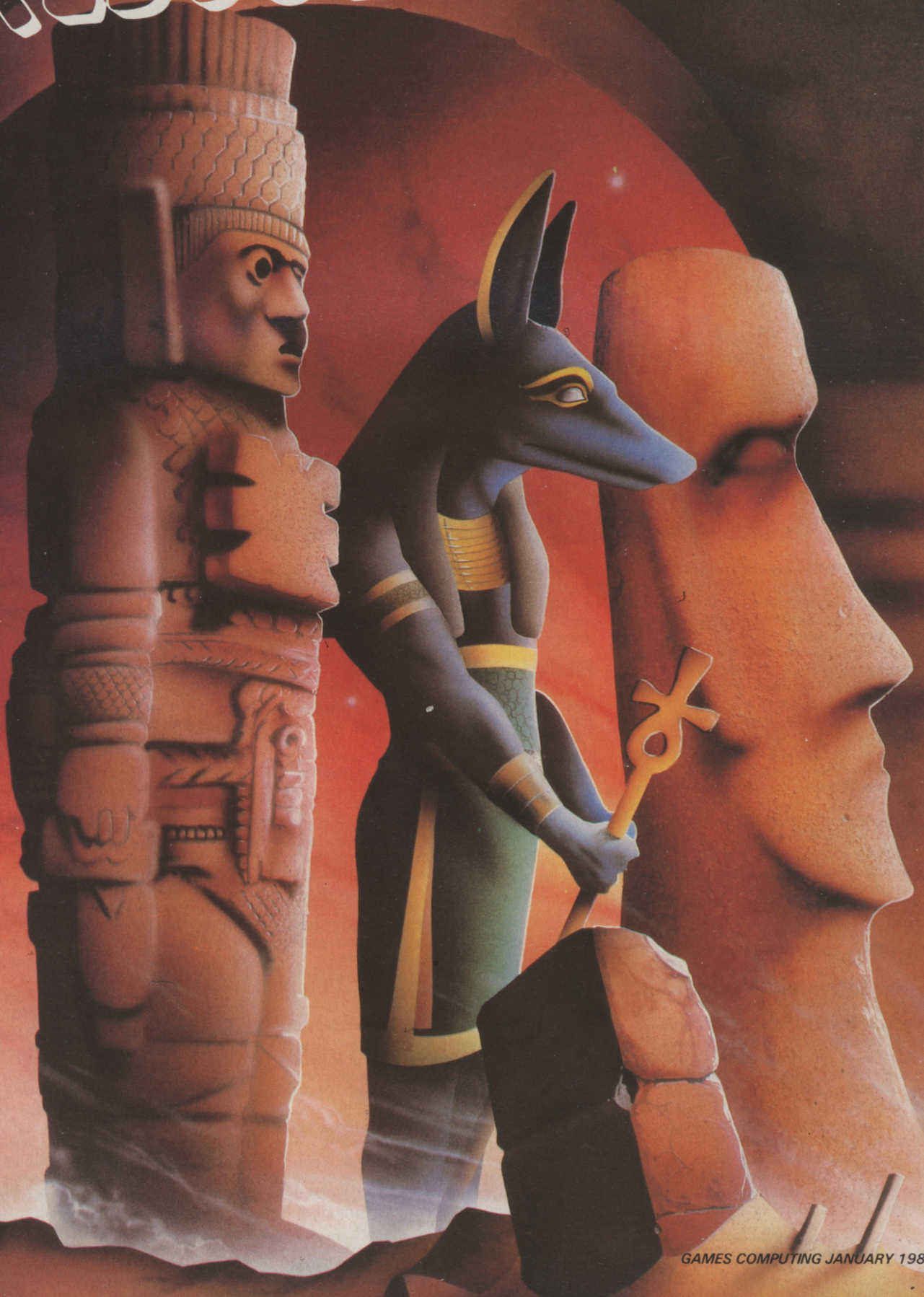
490	Data for meteor co-ordinates.
500-520	Data for tune for man reaching ship.
530	Data for music for ship blowing up.

Conversion Clues

Most of the program is self explanatory, with the variables explaining themselves.

Line	Action
110	Will need changing to suit your machines requirements to use the user defined graphics.
115	Is used to store the co-ordinates of the meteors and unless your machine has a PRINT AT facility, this line and others incorporating PRINT AT will have to be changed to enable the screen POKES to work.
135	Uses a system variable, 23677, which looks at the co-ordinate of the last x-point plotted.
145	This function of INKEY \$ will need to be changed to GET\$.
225	ATTR will need to be changed to a screen PEEK.
275	The BEEP will need to be changed to suit your micro's requirements.
490	Co-ordinates of meteors. If you are screen POKing these will need to be changed.
500-530	Data for BEEP statement will need to be changed.

MOON RESCUE





MOON RESCUE

```

10 REM *****
20 REM **** moon rescue ****
30 REM *** @ dave harwood ***
40 REM **** august, 1983 ****
50 REM *****
100 PAPER 0: INK 7: BORDER 0: C
LS
105 LET ship=3: LET points=0: D
IM a(5,2)
110 FOR i=1 TO 13: READ a$: FOR
a=0 TO 7: READ b: POKE USA a$+a
b: NEXT a: NEXT i
115 RESTORE 490: FOR i=1 TO 5:
FOR j=1 TO 2: READ a: LET a(i,j)
=a: NEXT j: NEXT i
120 PLOT INK 6;0,4
125 DRAW INK 6;0,((AND>.5)*2)-(
(AND>.5)*2*(PEEK 23678+1))
130 DRAW INK 6;3,0
135 IF PEEK 23677<250 THEN GO T
O 125
140 LET mcol=INT (RAND*29)+1
145 DEF FN a(c)=INKEY$=STR$ c
150 LET line=10: LET col=14: LE
T ladder=0: LET mline=20: LET a=
31
155 PRINT AT 0,0: INK 4;"Score-
points
160 BEEP .01,50: PRINT AT 20,mc
ol; OVER 1: INK 6;"Q";AT 21,mco
l;"^"
165 IF (FN a(9) AND (line<=19))
OR (FN a(0) AND (line>0)) OR (F
N a(2) AND (col<26)) OR (FN a(1)
AND (col>0)) THEN PRINT AT lin
e,col;" ";AT line+1,col;"
": LET line=line+(FN a(9)-FN a(0
)): LET col=col+(FN a(2)-FN a(1)
)
170 REM to get ^ type in 'gh' i
n graphics mode to get ^ ty
pe in 'ijkl' in graphics mode
175 PRINT AT line,col: INK 4;"
^";AT line+1,col;"^"
180 IF FN a(3) AND line>=9 AND
ladder<>1 AND mcol=col+1 THEN GO
SUB 0240
185 IF AND>.8 AND ladder<>1 THE
N GO TO 165
190 REM to get H type in 'ab'
in graphics mode to get Q
type in 'ef' in graphics mode
to get ^ type in 'cd' in graphi
cs mode
195 IF FN a(4) AND ladder=1 THE
N BEEP .01,50: PRINT AT mline,mc
ol; OVER 1: INK 6;"Q";AT mline+
1,mcol;"^": PAUSE 10: PRINT AT
mline,mcol: INK 6;"H";AT mline+
1,mcol;"H": LET mline=mline-1
200 IF ladder=1 AND mline=line+
1 THEN GO SUB 275
205 LET dnum=1
210 IF a(dnum,2)=-31 THEN LET a
(dnum,2)=31
215 REM to get . type in 'm' in
graphics mode
220 PRINT AT a(dnum,1),a(dnum,2
)," ": LET a(dnum,2)=a(dnum,2)-1
225 PRINT AT a(dnum,1),a(dnum,2)
: INK 2;"."
225 IF ATTR (a(dnum,1),a(dnum,2
)+1)<=6 OR ATTR (a(dnum,1),a(dnu
m,2)-1)<=6 THEN GO TO 0295
230 LET dnum=dnum+1: IF dnum<=5
THEN GO TO 210
235 GO TO (155+(ladder<>1))+((18
0*(ladder=1))
240 LET counter=line+2: LET Lli
ne=col+1: LET ladder=ladder+1
245 FOR i=counter TO 21
250 PRINT AT i,Lline; OVER 1: I
NK 6;"H"
255 NEXT i
260 PRINT AT mline,mcol; OVER 1
: INK 6;"Q";AT mline,mcol;"^"
265 IF ladder=2 THEN LET ladder
=0
270 RETURN
275 RESTORE 500: FOR i=1 TO 56:
READ length,pitch: BEEP length,
pitch: PRINT AT mline,mcol: INK
1;"/";AT mline+1,mcol;"^": N
EXT i
280 PRINT AT 8,10: INK 1: PAPER
7: FLASH 1;"You get 100 points"
285 LET points=points+100
290 FOR i=1 TO 100: NEXT i: CLS
: GO TO 115
295 CLS
300 RESTORE 530: FOR i=1 TO 10
305 BORDER 7: BORDER 0: BORDER
7: BORDER 0
310 READ length,pitch
315 BEEP length,pitch
320 BORDER 7: BORDER 0: BORDER
7: BORDER 0
325 PRINT AT line,col+1;"^";AT

```




```
line+1,col;" "
330 PRINT AT line,col+1;" ";AT
line+1,col;"
335 NEXT i
340 LET ship=ship-1: IF ship<=0
THEN PRINT AT 8,0; INK RND*7; P
APER RND*7; FLASH 1; BRIGHT 1;"G
ame Over Game Over Game over":
GO TO 0300
345 PRINT AT 8,0; INK 1; PAPER
7; FLASH 1;"You only have ";ship
;" ships left"
350 FOR i=1 TO 100: NEXT i
355 PRINT AT 10,0;"
```

```

360 CLS : GO TO 115
365 DATA "a",BIN 11000000,BIN 1
1000000,BIN 11000000,BIN 1111111
1,BIN 11000000,BIN 11000000,BIN
11000000,BIN 11000000
370 REM **
375 DATA "b",BIN 00000011,BIN 0
0000011,BIN 00000011,BIN 1111111
1,BIN 00000011,BIN 00000011,BIN
00000011,BIN 00000011
380 REM **
385 DATA "c",BIN 00000001,BIN 0
0000010,BIN 000001100,0,0,0,0,0
390 DATA "d",BIN 10000000,BIN 0
1000000,BIN 00110000,0,0,0,0,0
395 REM **
400 DATA "e",0,BIN 00000001,BIN
00000010,BIN 00000010,BIN 00100
010,BIN 00010001,BIN 00001001,BI
N 00000111
405 REM **
410 DATA "f",0,BIN 10000000,BIN
01000000,BIN 01000000,BIN 01000
100,BIN 10001000,BIN 10010000,BI
N 11000000
415 REM **
420 DATA "g",BIN 00001100,BIN 0
0000100,BIN 00001111,BIN 0001111
1,BIN 00111111,BIN 01111111,BIN
01011111,BIN 01001111
425 REM **
430 DATA "h",BIN 00110000,BIN 0
0100000,BIN 11110000,BIN 1111100
0,BIN 11111100,BIN 11111110,BIN
1111010,BIN 11110010
435 REM **
440 DATA "i",0,0,BIN 00000001,B
IN 00001111,BIN 00010000,BIN 001
00000,BIN 01111111,BIN 10000000
445 REM **
450 DATA "j",BIN 01000000,BIN 1
```

```
0000000,0,BIN 11111111,0,0,BIN 1
1111111,BIN 11111111
455 REM **
460 DATA "k",BIN 00000010,BIN 0
0000001,0,BIN 11111111,0,0,BIN 1
1111111,BIN 11111111
465 REM **
470 DATA "l",0,0,BIN 10000000,B
IN 11110000,BIN 00001000,BIN 000
00100,BIN 11111110,BIN 00000001
475 REM **
480 DATA "m",BIN 00111100,BIN 0
1111110,BIN 11111111,BIN 1111111
1,BIN 11111111,BIN 11111111,BIN
01111110,BIN 00111100
485 REM **
490 DATA 10,31,12,15,14,8,16,0,
18,24
495 REM **
500 DATA .4,0,.4,2.039,.7,3.86,
.3,0,.3,3.86,.3,0,.7,3.86,.7,2.0
39,.4,3.86,.3,4.98,.3,4.98,.3,3.
86,.3,2.039,.7,4.98,.7,3.86,.4,4
.98,.4,7.02,.3,3.86,.3,7.02,.3,3
.86,.3,7.02
505 REM **
510 DATA .7,4.98,.4,7.02,.3,8.8
4,.3,8.84,.3,7.02,.3,4.98,.7,8.8
4,.7,7.02,.3,0,.3,2.039,.3,3.86,
.3,4.98,.3,7.02,.4,8.84,.7,8.84,
.3,2.039,.3,3.86,.3,4.98,.3,7.02
,.3,8.84,.4,10.88,.7,10.88
515 REM **
520 DATA .3,3.86,.3,4.98,.3,7.0
2,.3,8.84,.3,10.88,.4,12,.4,12,.
4,10.88,.4,8.84,.4,4.98,.4,8.84,
.4,2.039,1.0
525 REM **
530 DATA 1,0,1,0,.5,2,.5,0,.5,3
,.5,0,.5,-1,.5,0,.5,1,1,0
```


'NOW WIN THE POOLS'

THIS IS MEANT FOR YOU — ESPECIALLY IF YOU USE A SINCLAIR SPECTRUM COMPUTER or even ANY COMPUTER — OR NO COMPUTER AT ALL.

HAVE YOU EVER HAD THAT DREAM OR EVER WISHED THAT YOU HAD "WON ON THE POOLS" — AT LAST YOU CAN TURN IT INTO REALITY.

THERE IS A SECRET OF "HOW TO WIN ON THE FOOTBALL POOLS" — **IT CAN BE DONE.** I DISCOVERED THE SECRET A LONG TIME AGO — NOW, **FOR THE FIRST TIME** I'M PREPARED TO SHARE IT WITH YOU.

HOW DOES THIS INTEREST YOU — I HAVE DOCUMENTARY EVIDENCE BY WAY OF POOLS WINNINGS DIVIDEND SLIPS/ CANCELLED CHEQUES, etc, SHOWING MY PRESENT WINS ON THE POOLS AS FOLLOWS:—

First Dividends	Second Dividends	Third Dividends	Fourth Dividends	Fifth Dividends	Sixth Dividends
765	1,818	2,942	1,952	631	93

A GRAND TOTAL OF 8,201 (EIGHT THOUSAND, TWO HUNDRED AND ONE DIVIDENDS — so far).

I HOLD THE UNCHALLENGED WORLD'S RECORD FOR POOLS WINS

I AM MAKING THIS VERY SPECIAL, REDUCED PRICE OFFER TO READERS OF HOME COMPUTING WEEKLY FOR A LIMITED PERIOD ONLY.

Do not let anyone tell you that it is impossible to "WIN ON THE POOLS" — since I perfected my method, **I HAVE WON REGULARLY** for over **TWENTY-FIVE YEARS** — proof that it is no 'flash-in-the-pan'.

I have **CHALLENGED THE WORLD** with my record of wins and with all the evidence that I possess — **NO ONE** has ever been able to accept the Challenge — **I KNOW NO ONE EVER WILL.**

MY SECRET IS NOW PLACED ONTO COMPUTER CASSETTE FOR YOU.

THE METHOD IS THE GREATEST TREBLE CHANCE WINNER IN THE HISTORY OF FOOTBALL POOLS — IT WILL LAST FOREVER — BOTH FOR ENGLISH AND AUSTRALIAN FOOTBALL POOLS, WITH EQUAL SUCCESS.

I now intend to give a limited number of people the opportunity of making use of my method — perfected over 25 years and proving itself on **EVERY ONE OF THOSE TWENTY-FIVE YEARS.**

You will have noted details of my personal achievements so far, as given to you above.

A GRAND TOTAL OF 8,201, yes 8,201 POOLS DIVIDENDS, including **765 FIRST DIVIDENDS.**

My Pools Winnings Dividend slips now number so many, that they fill a very large suitcase and will stand as my evidence of all claims in **ANY COURT OF LAW IN THE WHOLE WORLD.**

Taking just the past 25 years into consideration, I have won **ON AVERAGE** over 328, (THREE HUNDRED AND TWENTY-EIGHT) Pools Dividends **EVERY YEAR** — or — **AN AVERAGE** of over **SIX DIVIDENDS EVERY WEEK** for **TWENTY-FIVE YEARS.**

You have my absolute Guarantee of the complete authenticity of every claim, cheque, document, letter, etc, contained herein.

I do have losing weeks, but **ON AVERAGE** my winnings show over **SIX DIVIDENDS EVERY WEEK** for the past 25 years.

I know that you are now utterly flabbergasted, it always happens to everyone with whom I come into contact. Please just sit back and **imagine** for a moment my **FIRST DIVIDEND** wins alone — they now number 765 (seven hundred and sixty-five) and will probably be even more by the time this advertisement appears in print.

I AM NUMBER ONE IN THE WORLD AND NO ONE DISPUTES IT.

For as long as I continue to enter the Football Pools my wins will continue. I have already said, they apply, with equal success to both English and Australian Football Seasons.

I intend to release a **STRICTLY LIMITED** NUMBER of copies of my cassette — **DO NOT DELAY AND FIND YOU ARE TOO LATE**, in which case I would have to refund your money.

I am so confident of **YOUR** success that if **do not** win at least **THREE FIRST TREBLE CHANCE DIVIDENDS** in the first 20 weeks of entering, I will completely cancel the balance of the purchase price and you do not have to pay me another penny, at any time, no matter how vast your winnings.

I only wish that space would allow me to give you photographs of my winnings slips, cancelled cheques, etc, but it is of course impossible — they now number 8,201 dividends. I have however given **JUST A FEW EXTRACTS FROM ORIGINAL LETTERS** I hold from my small Clientele.

I am the Inventor and Sole Proprietor of my method, Registered as **EUREKA** — ('I have found it'). I am known as The Professor in Pools Circles — I am of the Highest Rank in Forecasting — this is beyond dispute. I am marketing a limited number of Computer Cassettes, under my Registered Company — **FOOTBALL ENTERPRISES.**

My initial charge for a copy was £75, but for this **SPECIAL REDUCED PRICE OFFER** I will send you a copy, for £20, (twenty pounds) **ONLY**, plus your Promise to pay me the balance of £55 — **ONLY IF YOU WIN AT LEAST THREE FIRST TREBLE CHANCE DIVIDENDS IN YOUR FIRST 20 WEEKS OF ENTERING** — otherwise you owe me **NOTHING FURTHER.**

This is surely proof absolute of my supreme and utter confidence in my own abilities and in the capabilities of my discovery. I could easily **CHARGE** £2,000 per cassette on the evidence I possess, but that would not be fair to everyone, which is what I want to do.

My method is **WORLD COPYRIGHT**, any infringement and immediate proceedings will be taken, without prior warning. It is truly ingenious and has stood the test of time.

My cassette is simplicity itself to operate and you'll be given **FULL DETAILS** for weekly calculating. Your entry need not involve you in any large weekly stakes, you can enter for as little as 25p, if you wish.

I charge **NO COMMISSION** on any of your wins — no matter how **BIG** they may be.

I realised a long time ago, that it was no good sitting down and **dreaming** about winning the pools, so I burnt the candle at both ends, working late into the night, occasionally **RIGHT THROUGH THE NIGHT**, I **KNEW** there was a way, eventually it all paid off and has been doing so ever since.

I am unable to vary my offer to anyone, so please do not request it, as I shall very easily dispose of the cassettes I have prepared and am making available.

IMMEDIATELY I perfected my method I commenced winning right away, (first with just a little £163, the first week I used it), I **HAVE NEVER LOOKED BACK SINCE**, amongst all those dividends was one for over **EIGHT THOUSAND POUNDS** for just **one eighth of a penny stake.**

I will release a copy on cassette, to you, on receipt of the completed order form and your Signature thereon, confirming you will treat it in the **STRICTEST CONFIDENCE** between us and retain it for your **OWN USE ONLY.**

PLEASE NOTE:

If you happen to be the proud owner of a Computer, **other than a Sinclair Spectrum**, you can still purchase a copy of my method, for the same price and program it **YOURSELF** on to **YOUR OWN COMPUTER** — or even if you do not have a **COMPUTER.**

Don't take my word for it, read what people write about me and my method:—

I won on Zettlers last weekend. It was not a big sum, but all the same it was a very nice surprise for me. J.C., Lancs.

I appreciate the straightforward method you adopt, which is such a contrast to the rubbish of misrepresentation which is so common in the Betting World, by unscrupulous and self-opinionated charlatans. C.H., Devon

Winnings cheque received today, sincere thanks. D.N., Devon

I congratulate you on your achievement. R.R., Wales

I should like to thank you for a most exciting season and look forward to hearing from you again. J.C., Hants.

I would like to acknowledge cheque and say how much I appreciate your integrity. J.M., Scotland

Many thanks for your system, it is all you say and more. J.C., Lancs.

Your wonderful system won me £3,527. I intend to visit London soon and will be able to come and see you personally. (Overseas Client). P.M., Kampala.

Many thanks for trying so hard to please us all, your brother should be thanked also. One of our daughters, WHOSE HUSBAND YOU HELPED ENORMOUSLY, has just phoned, the four of them have just spent a lovely holiday in Spain. K.R., Isle of Man.

I sent in my FIRST entry last week and won 2nd and 3rd dividends, as you will see from the enclosed certificate. One more and I would have collected over £400 for FIRST dividend. Once I've won a fair amount I shall be staking from winnings and at 2p per line, A FIRST DIVIDEND last week at this would have been over £3,000. C.A., Yorks.

I am very interested indeed and enclose £20 herewith. I agree to pay you the balance of £55 **ONLY** if I win at least **THREE FIRST TREBLE CHANCE DIVIDENDS** in my first 20 weeks of entering — otherwise I owe you **NOTHING FURTHER** at any time — no matter how much money I win. My Signature below is my Undertaking to retain complete and absolute confidence about the method.

Name.....

Address.....

.....

.....

Signature

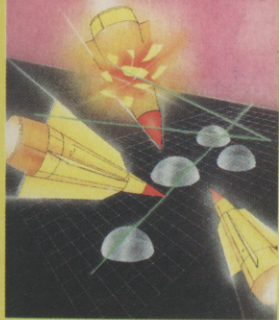
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'Anvon',
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Haverfordwest, Pems.

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Sinclair ZX81 (16K)	☐
Sinclair Spectrum (48K)	☐
Any other Computer	☐
No Computer at all	☐

Arcade Action for Spectrum and ZX81 16K, 48K

ELEKTRO STORM



ELEKTRO STORM

Earth is under attack from wave after wave of intergalactic missiles – your mission is to blast them out of the sky with your laser cannon before the whole human race is wiped out.

SPECTRUM 48K 5.95

HOPPER



HOPPER

Help FERGUS and his friends across the highway avoiding the traffic, and then over the treacherous river on the backs of turtles and logs to the safety of the lily pond.

Features include: 6 lanes of traffic, diving turtles, crocodiles & flies.

ZX81 16K 3.95

SPECTRUM

16K 48K 5.95

LIGHT CYCLE

The MASTER CONTROL PROGRAM has ordered you to race your light cycle on the infamous grid. This is an incredibly fast, adrenalin pumping game that is very addictive. There is an option to race against either another player or the computer – but we warn you its very very good!

SPECTRUM

16K 48K 5.95

MAZE DEATH RACE

Drive your 500b.h.p. racing car around a giant maze (9 times the size of the TV screen on the ZX81 version, 32 times for the spectrum). Watch out for the hazards – oil, ice, fallen rocks etc. Not the least of your worries are the chase cars also

in the maze – one touch with these means instant death!

ZX81 16K 3.95

SPECTRUM 48K 4.95

PANIC

"It must be a nightmare" he screamed as he ran around the maze of floors, desperately climbing ladders to different levels in a vain attempt to evade the monsters.

He had only his neutron hammer to dig holes for the vile creatures to fall into, but even then he had to repeatedly hit them before they dropped to their deaths. As if that wasn't bad enough, the oxygen supply was running out!

SPECTRUM 48K 5.95



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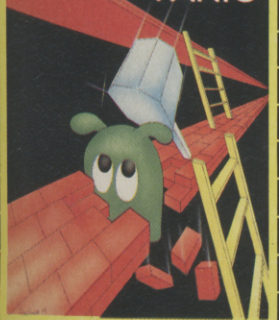
LIGHT CYCLE



MAZE DEATH RACE



PANIC



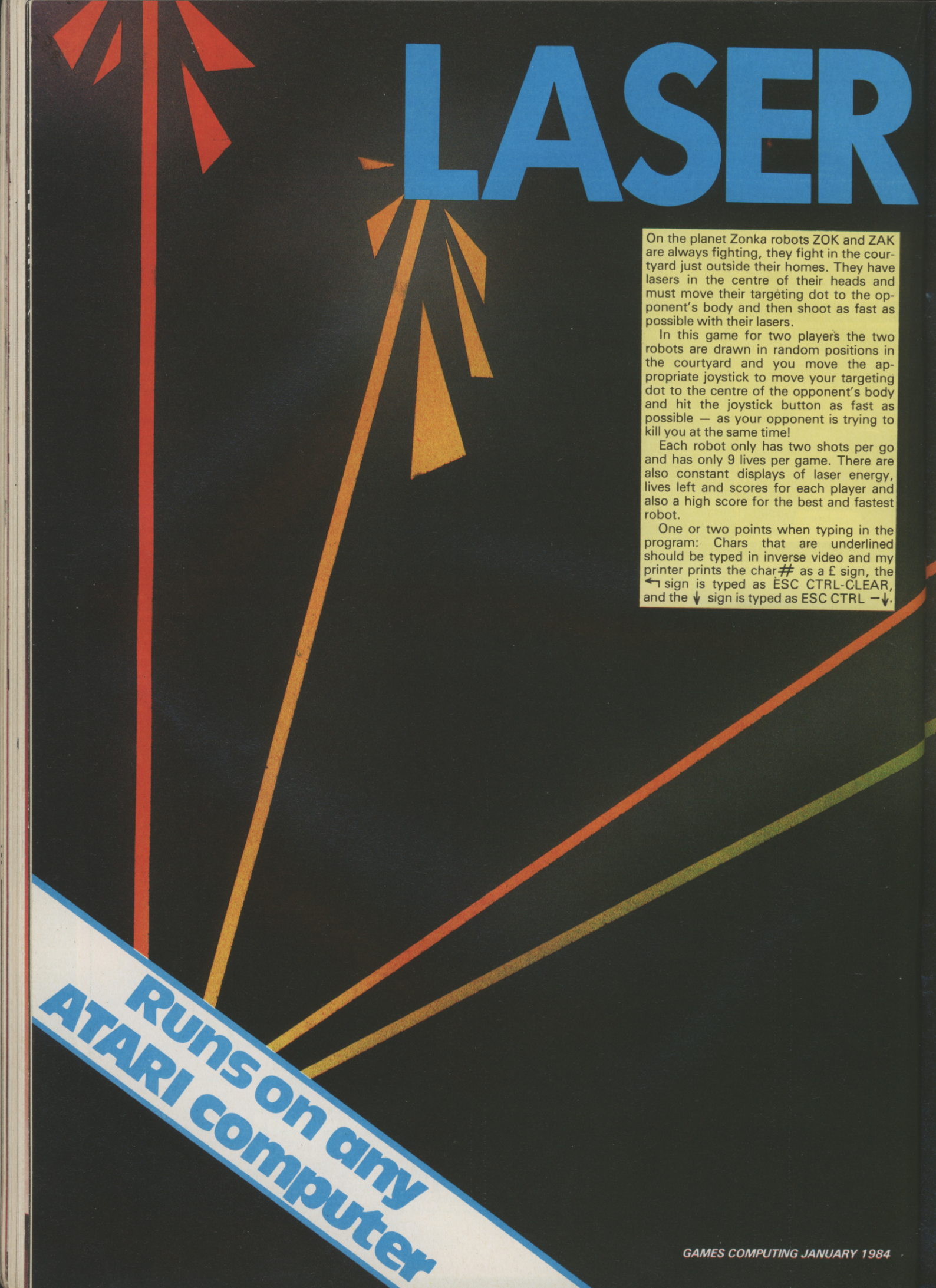
KRAZY KONG

Can you rescue Jane from the evil clutches of KRAZY KONG? Fight your way through three screens of fireballs, barrels and conveyor belts to the top of the girders and save the damsel in distress. Entirely written in machine code to give super fast arcade action.

ZX81 16K 3.95

SPECTRUM 48K 5.95





LASER

On the planet Zonka robots ZOK and ZAK are always fighting, they fight in the courtyard just outside their homes. They have lasers in the centre of their heads and must move their targeting dot to the opponent's body and then shoot as fast as possible with their lasers.

In this game for two players the two robots are drawn in random positions in the courtyard and you move the appropriate joystick to move your targeting dot to the centre of the opponent's body and hit the joystick button as fast as possible — as your opponent is trying to kill you at the same time!

Each robot only has two shots per go and has only 9 lives per game. There are also constant displays of laser energy, lives left and scores for each player and also a high score for the best and fastest robot.

One or two points when typing in the program: Chars that are underlined should be typed in inverse video and my printer prints the char # as a £ sign, the ↵ sign is typed as ESC CTRL-CLEAR, and the ↓ sign is typed as ESC CTRL -↓.

**RUNs on any
ATARI computer**

PRACTICE

```
10 DIM X(2),Y(2),A(2),B(2),SCORE(2),ENERGY(2),LIVES(2):HIGH=0:HITCLR=53277:GOT
0 10000
100 CHAR=0:IF STRIG(0)=0 THEN GOSUB 23000:GOSUB 24000:GOSUB 22000:CHAR=1:GOSUB
22000
101 GOSUB 26000
110 CHAR=1:IF STRIG(1)=0 THEN GOSUB 23000:GOSUB 24000:GOSUB 22000:CHAR=0:GOSUB
22000
115 COLOR 0:GOSUB 1000
120 FOR CHAR=0 TO 1:A=STICK(CHAR):GOSUB 24100:NEXT CHAR
128 COLOR 1
129 TRAP 23950:GOSUB 1000
131 REM NEXT I
132 TIME=TIME+1:IF TIME=10 THEN SETCOLOR 0,RND(0)*15,9:TIME=0
200 GOTO 100
1000 FOR CHAR=0 TO 1:PLOT A(CHAR),B(CHAR):NEXT CHAR:RETURN
10000 REM START/INTRO
10010 GRAPHICS 18:REM SE,5 HERE
10012 GOSUB 20000:POKE DL+10,6:POKE DL+12,6:POKE 53277,4
10013 POSITION 2,0:POKE 53768,24:POKE 53761,168:POKE 53763,168:POKE 53765,168
10015 POSITION 2,1:POKE 53767,168:POKE 53760,240
10016 POSITION 2,2:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
10020 POSITION 2,5:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
10022 POSITION 3,7:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
10024 POSITION 4,9:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
10025 POSITION 4,10:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
10030 POSITION 4,11:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
10035 SOUND 0,255,10,8:SOUND 1,254,10,8:POKE 53768,1
10036 SCORE(0)=0:SCORE(1)=0:LIVES(0)=9:LIVES(1)=9
10040 FOR I=0 TO 255:POKE 708,1:NEXT I
10050 IF STRIG(0)=1 AND STRIG(1)=1 THEN 10040
10051 POKE HITCLR,0
10060 SOUND 0,0,0,0:SOUND 1,0,0,0
11000 REM SCREEN SET UP FOR GAME
11010 GRAPHICS 7:SETCOLOR 2,0,0:SETCOLOR 0,RND(0)*15,8:SETCOLOR 1,3,6
11011 SETCOLOR 2,14,0
11012 GOSUB 20000:POKE DL,0:POKE DL+1,0:POKE DL+3,70:POKE DL+6,6
11013 GOSUB 21000:TIME=0
11014 POKE 752,1:COLOR 1:PLOT 0,1:DRAWTO 159,1:DRAWTO 159,78:DRAWTO 0,78:DRAWTO
0 0,1
11025 GOSUB 25100
11100 GOSUB 20010
11205 GOSUB 24000
19999 GOTO 100
20000 DL=PEEK(560)+256*PEEK(561):RETURN
20010 ? "LASER LIVES" LASER LASER
20015 ? "ENERGY LEFT" LEFT ENERGY2
20020 ? "ENERGY(0):IF ENERGY(0)=0 THEN ? " "
20025 ? "LIVES(0):" LIVES(1) ENERGY(1)
20030 RETURN
21000 POKE 87,1
21010 POSITION 0,0:POKE 53768,24:POKE 53761,168:POKE 53763,168:POKE 53765,168
21012 POKE 53767,168:POKE 53760,240
21015 POSITION 0,1:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
21020 POKE 87,7:RETURN
22000 REM DRAW CHAR(CHAR)
22001 REM X(0)=XPOS CHAR, Y(0)=YPOS CHAR TLFTH CORNER
22010 X=X(CHAR):Y=Y(CHAR)
22011 COLOR 1:PLOT X,Y+1:PLOT X+8,Y+1
22015 COLOR 2:PLOT X+2,Y:DRAWTO X+6,Y:DRAWTO X+6,Y+4:DRAWTO X+2,Y+4:DRAWTO X+2
,Y:FLAT X+3,Y+5:DRAWTO X+5,Y+5
22020 PLOT X,Y+12:DRAWTO X,Y+6:DRAWTO X+8,Y+6:DRAWTO X+8,Y+12:PLOT X+2,Y+9:DR
AWTO X+2,Y+17:DRAWTO X,Y+17
22025 DRAWTO X,Y+19:DRAWTO X+8,Y+19:DRAWTO X+8,Y+17:DRAWTO X+6,Y+17:DRAWTO X+6
,Y+19:PLOT X+4,Y+18:DRAWTO X+4,Y+13
22030 COLOR 1:PLOT X,Y+11:PLOT X+4,Y+2:PLOT X+3,Y+3:DRAWTO X+5,Y+3
22031 PLOT X,Y+12:PLOT X+1,Y+12:PLOT X+7,Y+12:PLOT X+8,Y+12
22035 IF CHAR=0 THEN PLOT X+4,Y+8:DRAWTO X+4,Y+11
22040 IF CHAR=1 THEN PLOT X+3,Y+8:DRAWTO X+5,Y+8:PLOT X+5,Y+9:DRAWTO X+3,Y+10:
PLOT X+3,Y+11:DRAWTO X+5,Y+11
22045 PLOT X+1,Y+1:PLOT X+7,Y+1
22050 PLOT X+1,Y+18:DRAWTO X+3,Y+18:PLOT X+5,Y+18:DRAWTO X+7,Y+18
22060 COLOR 0:PLOT X,Y+1:PLOT X+8,Y+1
22999 RETURN
23000 POKE 77,0:XT=X(CHAR)+4:YT=Y(CHAR)+1
23001 IF ENERGY(CHAR)=0 THEN GOTO 25000
23002 IF CHAR=0 THEN SOUND 0,200,12,10
23003 IF CHAR=1 THEN SOUND 0,50,10,10
23004 TRAP 23950:COLOR 0:PLOT A(CHAR),B(CHAR)
23005 FOR I=1 TO 10
23010 COLOR 1:PLOT XT,YT:DRAWTO A(CHAR),B(CHAR):COLOR 0:PLOT XT,YT:DRAWTO A(CH
AR),B(CHAR)
23015 NEXT I:SOUND 0,0,0,0
23020 CT=CHAR+1:IF CT=2 THEN CT=0
23030 IF A(CHAR)>X(CT)+1 AND A(CHAR)<X(CT)+7 AND B(CHAR)>Y(CT)+6 AND B(CHAR)<Y
(CT)+12 THEN GOTO 24200:REM EXP
23040 ENERGY(CHAR)=ENERGY(CHAR)-1000:GOSUB 20010:IF ENERGY(CHAR)=0 THEN GOSUB
25000
23041 RETURN
23950 A(CHAR)=X(CHAR)+4:B(CHAR)=Y(CHAR)+1:GOTO 100
24000 SOUND 0,0,0,0:POKE 53768,24:POKE 53761,168:POKE 53763,168:POKE 53765,168
:POKE 53767,168:POKE 53760,240
24005 POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
24100 IF A=15 THEN RETURN
24103 A(CHAR)=A(CHAR)+5*((A=7)+(A=6)+(A=5)+(A=11)-(A=10)-(A=9))
24105 B(CHAR)=B(CHAR)+3*((A=13)+(A=5)+(A=9)-(A=14)-(A=10)-(A=6)):RETURN
24200 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND 2,0,0,0:SOUND 3,0,0,0:GOSUB 26200
24203 SETCOLOR 4,8,12:SOUND 0,10,10,4:FOR I=0 TO 10:NEXT I:SETCOLOR 4,0,0
24204 COLOR 1:SOUND 0,0,0,10
24205 FOR I=0 TO 100 STEP 3:POKE 53760,I:XT=RND(0)*10+X(CT):YT=RND(0)*20+Y(CT)
:PLOT X(CT)+4,Y(CT)+8:DRAWTO XT,YT
24206 NEXT I
24207 FOR XT=0 TO 10:SETCOLOR 4,8,12:FOR I=0 TO 3:NEXT I:SETCOLOR 4,0,0:SOUND
0,XT*10,10,14
24210 SOUND 0,0,0,0:FOR I=0 TO 3:NEXT I:NEXT XT
24212 LIVES(CT)=LIVES(CT)-1:IF LIVES(CT)=0 THEN GOTO 27000
24215 SCORE(CHAR)=SCORE(CHAR)+250*ENERGY(CHAR)/1000:IF LIVES(CT)=0 THEN 27000
24220 POP IPOP:GOTO 11000
24299 RETURN
25000 SOUND 1,0,0,0:SOUND 2,0,0,0:SOUND 3,0,0,0
25005 ? "PLAYER *CHAR+1* - NO ENERGY LEFT"
25010 FOR I=100 TO 0 STEP -1:SOUND 0,I,12,1:NEXT I:SOUND 0,0,0,0
25040 IF ENERGY(0)<ENERGY(1) THEN GOSUB 20010:RETURN
25050 FOR I=0 TO 120:NEXT I: ? "PLAYERS 1 AND 2:?" OUT OF E
NERGY"
25055 POP IPOP:SOUND 0,0,8,10:FOR XT=0 TO 6:FOR I=255 TO 20 STEP -6:POKE 5376
0,I:NEXT I:NEXT XT
25060 SOUND 0,0,0,0:FOR I=0 TO 15:NEXT I:GOTO 11000
25100 FOR CHAR=0 TO 1:ENERGY(CHAR)=2000
25105 X(CHAR)=2+RND(0)*145:Y(CHAR)=3+RND(0)*55
25130 A(CHAR)=X(CHAR)+4:B(CHAR)=Y(CHAR)+1
25135 NEXT CHAR
25140 IF ABS(X(0)-X(1))<9 OR ABS(Y(0)-Y(1))<20 THEN GOTO 25100
25150 FOR CHAR=0 TO 1:GOSUB 22000:NEXT CHAR
25190 RETURN
26000 RETURN
26000 COLOR 1:PLOT X(CT)+4,Y(CT)+1
26201 FOR XT=40 TO 0 STEP -3:FOR I=0 TO 1:COLOR I:GOSUB 26250:FOR YT=0 TO 5:NE
XT YT:SOUND 0,0,0,0
26203 FOR DL=0 TO 5:NEXT DL
26205 SOUND 0,XT,12,8:NEXT I:NEXT XT:RETURN
26250 X=X(CT):Y=Y(CT)
26252 PLOT X,Y+1:PLOT X+8,Y+1:PLOT X+4,Y-1
26260 PLOT X+3,Y+1:PLOT X+5,Y+1
26299 RETURN
27000 SCORE(CHAR)=SCORE(CHAR)+500*LIVES(CHAR)
27010 IF SCORE(CHAR)>HIGH THEN HIGH=SCORE(CHAR)
27020 GRAPHICS 18
27030 POSITION 5,1:POKE 53768,24:POKE 53761,168:POKE 53763,168:POKE 53765,168
:POKE 53767,168:POKE 53760,240
27040 POSITION 6,3:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
27050 POSITION 6,5:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
27060 POSITION 2,8:POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
27070 FOR I=0 TO 250 STEP 7:SOUND 0,I,10,8:POKE 710,I:NEXT
27071 NEXT XT
27999 POP IPOP:GOTO 10000
```


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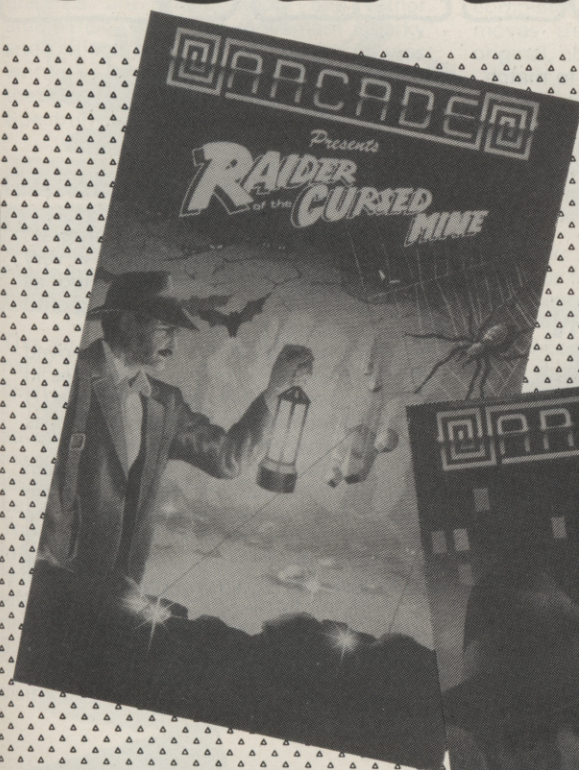
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(24hr answering)

SOFTWARE



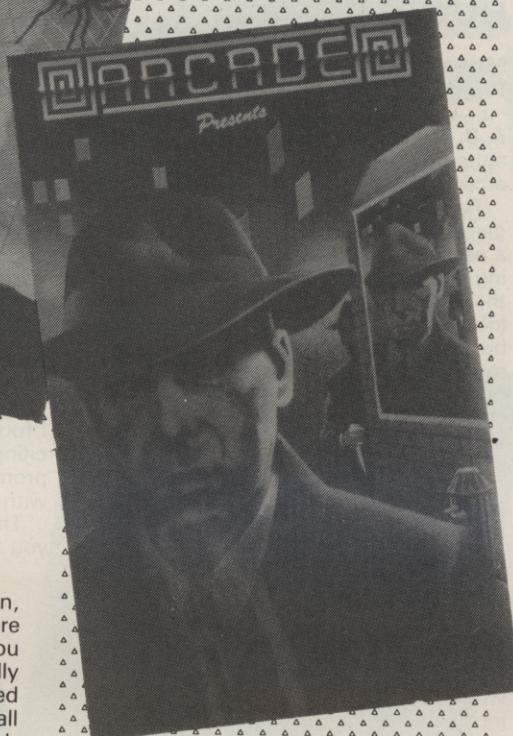
GAME: RAIDER OF THE CURSED MINE

Made by: Arcade
Price: £5.50

This is a maze game a little like Pacman, but quite original and fun to play. You are trapped down a mine and to escape you must collect diamonds and gradually move up the levels, having been regarded by an increase in level and a lamp when all the diamonds on one level have been collected.

Easy. Well, it would be, were it not for the trolls, the bat, the ghost and the spiders. Trolls drop boulders on you, which is not very healthy, bats steal all your treasure, and ghosts and spiders do unspeakable and terminal things.

You travel across the screen horizontally by walking, and vertically through a choice of three lifts. Each time you attempt to recover a diamond you must choose a level without ghost, bat or spider, and time your journey so that it is boulder-free. So not only is arcade dexterity needed but a degree of strategy is also involved. This is an interesting variant and well thought out. I could find no bugs in the program though I quickly discovered a slight flaw in design which makes play rather easier than it should be. I won't tell you what it is, because getting there is half the fun. . . .



GAME: THE DETECTIVE

Made by: Arcade Software Ltd
Price: £5.50

This game has you playing the part of a brave detective who must make his way through 'dagger alley'.

You are attacked by different waves of robots, helicopters, aeroplanes and spaceships, to mention but a few which

increase with speed as you kill them off. To top this there is also a mad dog that chases you across the bottom of the screen, if he catches you before you can escape your score is reset back to nought. In addition you are attacked by a row of tyres, which collect on the screen and descend in an attempt to crush you. These are immune to your fire and must be avoided.

In all, there are twenty-five levels to cope with, nearly every level introduces a new type of object to combat, although their formation and movement does not differ much. On reaching the final level you must attempt to open a safe by guessing its combination (a number between 1000-9999).

The game loaded first time without problem and is compatible with Kempston and AGF joysticks. The high score is recorded but unfortunately the players name is not. The graphics and sounds are not exactly exciting but the game proves to be addictive. Overall it's a game of fairly good quality but don't be fooled by the title, it's just another version of invaders. Fun to play but by no means a classic

GAME: GALAXIANS

Made by: Artic Software
Price: £4.95

This is a good version of a great game. The original contains some of the meanest, noisiest aliens around — this reproduction does not let the original down.

Keys are well chosen, the left/right keys being well away from the fire and reset keys. Hi-res graphics are a very good feature of the Spectrum — and are only rarely exploited to the fullest by commercial software: Artic, though, make full use of them in this fast, smooth game — no jerky movement at all.

The sound is surprisingly good — especially where amplified — and really moans as the aliens scream down, twisting and turning towards you. A nice touch is the "loop the loop" that all the Galaxians do after each "bombing mission." The actual graphic characters — especially the laser base — are almost identical to the arcade original's, and are very colourful. Nine skill levels are also available — but I strongly recommend that you start with the first!

Also available is a two player option — surprisingly rare on most Spectrum games. Minimal instructions are needed, but adequate are provided, and the game loaded first time. When compared with similar games at several pounds more money, this game is excellent value for money, and is a must for your software library.

REVIEWS

SOFTWARE

GAME: CAMELOT

Made by: Cases Computer Simulations
Price £5.50

Camelot starts with a copyright notice with dire warnings for any would-be software pirates. The writers need not worry as copying this tape is hardly worth the effort.

The game is set in medieval England where you have just been deposed from your rightful throne. The object is to roam the countryside with faithful warriors trying to collect enough treasure to ensure that you can reign the crown. At every move a rudimentary map is displayed with just over a dozen locations shown. When a move is made the scene is depicted on the screen. The graphics are low resolution and crude and do not do justice to what the Spectrum is capable of. Besides there are only four scenes that are ever displayed.

Various situations may arise, such as bands of warriors attacking your party. Pressing the 'fight' option means you invariably win and may continue. You can but as your supplies are at various bazaars that are scattered around, the method for purchasing goods is, to say the least, tedious. The program responds (?) to single key entry but since it is written in BASIC is incredibly slow.

There are three levels ranging from pointlessly easy to impossibly hard. Well, the graphics are colourful (but no where near the standard of such masterpieces like 'The Hobbit') and the tape did LOAD first go. It may keep the kids amused for a few minutes.

GAME: STAR FIGHTER

Made by: Durell Software
Price £5.50

A good, fast, action adventure game in which you play the part of Captain of an intergalactic starship on a mission to clear the Andromedan galaxy of alien intruders.

On your way you battle with alien ships and have to avoid collision with anti-matter mines and planets as you work through each sector of space passing through star gates, refuelling as you go. You are armed with long range photon torpedoes and phasors and are provided with all the necessary energy status gauges and warning devices you could need. Skill level can be varied from 0 to 9.

The program is written in machine code and makes really excellent use of graphics and sound. The close range dog-fighting with alien ships is tremendous. I found the program entirely crashproof but had difficulty loading from tape at fast speed, not because of errors introduced but the initial signature at commencement of loading had been cut short. There were no problems at slow speed however.

Operation of the four cursor shift keys, space bar and on occasions the return bar

proved to be rather too difficult to match the speed of the game; it would be so much better with a joystick controller.

Supplied instructions were comprehensive. An excellent game for anyone who likes plenty of noise and excitement and very good value at the price.

GAME: A.B.M. CONTROL/CAVERN HUNT

Made by: Timeless Software
Price: £4.95

A.B.M. Control is not an original game although it is a reasonable version of the arcade favourite Missile Command.

For those of you who don't know the game you have four cities to defend from a never ending stream of bombs, low flying missiles, etc. You have to explode them using joystick to control a cross located on the screen by pressing the fire button. With an option of 1 or 2 players, multi-level screens, it's quite addictive. I managed to reach level 12. The screen colour changes and the level is displayed at the beginning of each successful screen you manage to clear.

Cavern Hunt loads in two parts, the first containing all the instructions for the game, in which you search out the wumpit, a creature who is invisible until he's shot with your arrow. The game takes place in a 3D maze with hazards such as bats that pick you up and drop you elsewhere, slime pits and one or more wumpits. Clues are given as to whereabouts of the wumpits, and pressing the spacebar displays your footprints and any slime pits or bats you have encountered. An excellent game for the price which needs joystick to play it.

GAME: STORM ARROWS

Made by: Dragon Data
Price: £7.95

Storm Arrows is the second program from Dragon Data and the game is very fast and addictive. The idea is to shoot all the arrows on one level before going onto the next maze.

To do this you control a laser, moved with the joystick, blasting all enemies in sight. Not easy to do as a master arrow (?) drop eggs that hatch into more arrows as the game proceeds.

A well written machine code program with good graphics and a nice random colour change with each new screen. The only fault is the sound, arrows don't sound like that! Every Dragon owner should own this highly entertaining game.

GAME: ROBBER

Made by: Virgin Games
Price £7.95

I found the cassette inlay much more exciting than the actual game. There is a promise of a three screen game, each with its own particular problems.

The first scene is a guarded room where you have to retrieve various objects, in-



cluding one which is only visible in a torch beam. Success there leads you to a bridge built of many sections which disappear at apparently irregular times. After this the scene becomes subaquatic with deadly jellyfish to overcome, before fending off

the man eating birds in the catacombs. Eventually the safe in the castle vault is at your mercy.

With great expectations, I loaded the program and then found the whole thing to be very disappointing indeed. The graphics are small, fiddly and rather amateurish, while the movement is jerky and difficult to judge. The program was written in BASIC and then compiled, and the results fall far short of that which Spectrum owners have come to expect.

GAME: QUETZALCOATL

Made by: Virgin Games
Price: £6.95

This strange-sounding program takes its name from a temple in which you have been cast by bandits.

The program is rather like a graphical adventure set in a three dimensional maze, with an excellently drawn screen display. The object is very simple to state but difficult to achieve . . . to survive. There are four levels in the maze with an intricate pattern of passageways. The only movements necessary are forward, turn left and turn right, and these are conveniently grouped together at keys 1, 2, and 3.

Within this framework there are various distractions. Along the passageways

sets you a puzzle with only a 25% chance of success and survival. The movement between levels is by shafts — blue ones being safe while black shafts deplete your store of beads.

The action is fast and smooth, with completely accurate orientation as one moves through the maze. I found it original, challenging and fascinating.

GAME: PUZZLE PACK

Made by: Sumlock
Price: £6.95

Sumlock puzzle pack consists of six games as follows:

Orbits — The object of Orbits is to land your ship — four of one shape in a line — on the correct landing pool. To make the game slightly hard the landing pad moves continuously.

Knight's Move — the object is to land on all the squares in an eight by eight grid using the Knight's move (two squares one way and one another). You are not allowed to land on squares you have already been on.

Graphic Twister — Match the shape given by rotating your block of Graphics in various directions.

score possible with 25 moves.

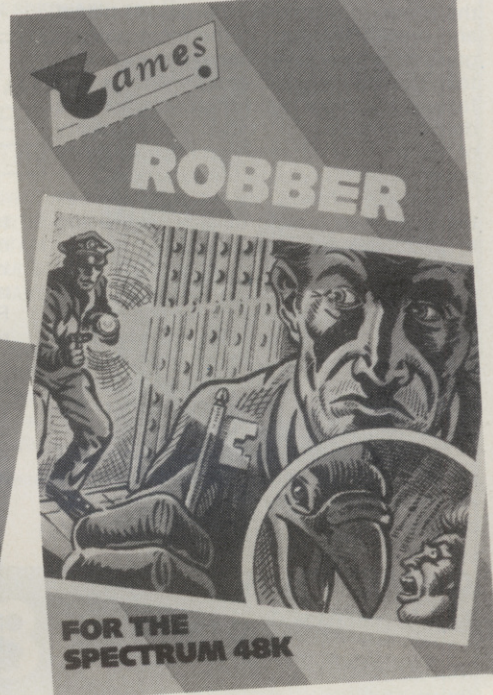
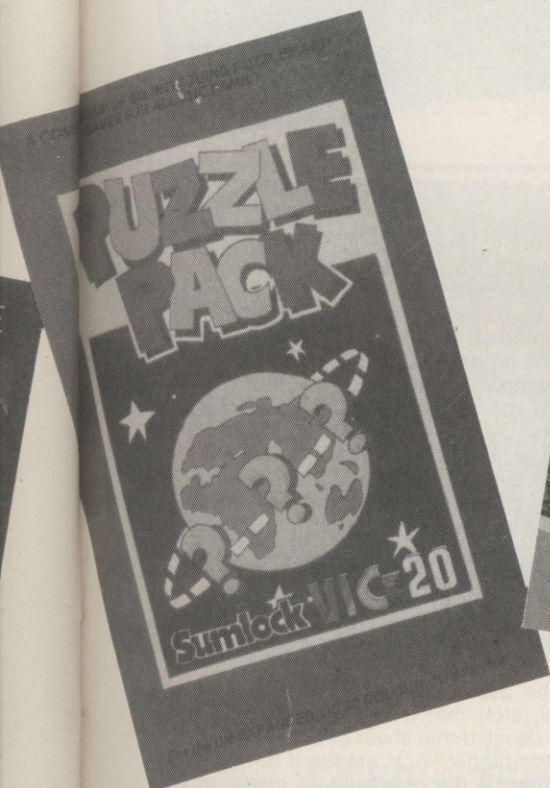
All of these puzzles use keyboard graphics not user defined and do not have very good sound.

Not suitable for anyone over the age of ten.

GAME: POOL

Made by: Bug-Byte
Price: £5.95

This game is not actually a simulation of Pool, or Billiards or Snooker or any similar game, but uses the basic idea of those games to create a simplified version for the Spectrum. You only have six balls to pot, plus a cue ball, and all seven are the same colour. It seems a shame that the cue ball could not be a different colour. However the cue ball is distinct because



the other six are numbered.

You must try to pot all six, scoring ten times the number on the ball for each pot. However if you pot your cue ball the game resets and you must start again. You also have three 'lives' and lose a life for each successive run of three misses. When all three lives have gone, the game starts again.

The game has a two-player option in which both players try to pot the same six balls. However, unlike Pool proper, play does not pass to the other player when you miss your pot, but when three lives have been lost. This means that a player can take two free strokes to line up the cue ball before attempting your pot, so trying to snooker your opponent is a waste of time.

I think a game which attempts to simulate a real game should do a better job than this.

Rainbows — Complete the rainbow by typing in the next three letters of a series of letters.

Slide Puzzle — Move blocks around — by sliding them into the empty space — to make a set pattern. Version of traditional hand-held puzzle.

Digits — Make your way around a screenful of numbers getting the highest

groups of beads are sprinkled which will be useful later in the game. There is also a guardian on each level, either benevolent or not. For instance, Huyitzilpochtli will give you a compass and map, while Tialoc

REVIEWS

SOFTWARE

GAME: BUGABOO (THE FLEA)

Made by: Quicksilva
Price: £6.95

Perhaps the greatest compliment I could pay to this superb game is that it ranks alongside Jetpac and Penetrator in my collection. Like many of the best programs, it is beautifully simple in concept, yet delightfully difficult in practice.

After an entertaining loading sequence, the program autoruns to a distant planet and reveals the hero in the most unlikely guise of a flea! This flea, in the introductory animation, leaps around on the surface of the planet and then falls down a deep shaft to a rocky base. The simplicity of the program is that you have to guide our itchy friend back to the surface.

However (there's always a 'however') there are two main problems, one being to avoid the superbly animated monster which prowls around the screen and which appears to be very hungry. The other main problem is in finding a successful exit so that the flea actually lands safely on each ledge, rock or grass clump. There is an excellent scrolling facility which allows a glimpse of what lies above, below or to the side.

The speed, colour and animation of this program are superb, and I thoroughly recommend it in anyone's collection. It is delightful not to be zapping anything!

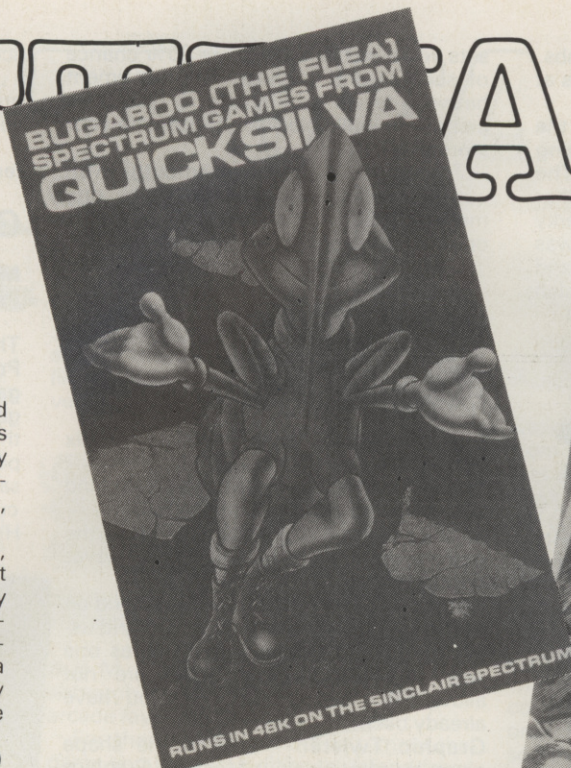
GAME: KILLER CAVERNS

Made by: Virgin Games Ltd.
Price: £5.95

This is an adventure game in which "poor helpless Harold" has to venture through a system of caverns avoiding the deadly perils within to find a number of dispersed pieces of a ladder. With these he can eventually reach the treasure hidden at the bottom of awell.

Written in BASIC the program uses a colourful although slow moving display and makes appropriate sounds as you venture through the game. The low resolution graphics made up from redefined lower case letters are adequate but not very exciting. The program is completely devoid of REM statements but for anyone interested is straightforward to LIST, there being no devices to protect it from intruding eyes.

In fact this was just as well because I had extreme difficulty in LOADING the program from tape; each time I tried I got syntax errors in a variety of places. Even-



tually I decided this was due to a low recording level on the tape and had to work through the LISTING correcting errors before I could bet the program to RUN. Lets hope Virgin Games get this right for production.

The program is simple to use, requiring only left and right curser keys and the instructions are adequate. Value for money was considered somewhat less than average as for me the game quickly lost interest.

GAME: SUPER SKRAMBLE

Made by: Terminal Software
Price: £9.95

This is, if you haven't guessed it already — a version of the arcade game scramble.

The program quality is overall good but overdoes it slightly on the sound side. It plays tunes at the beginning of each attempt using all three voices excellently.

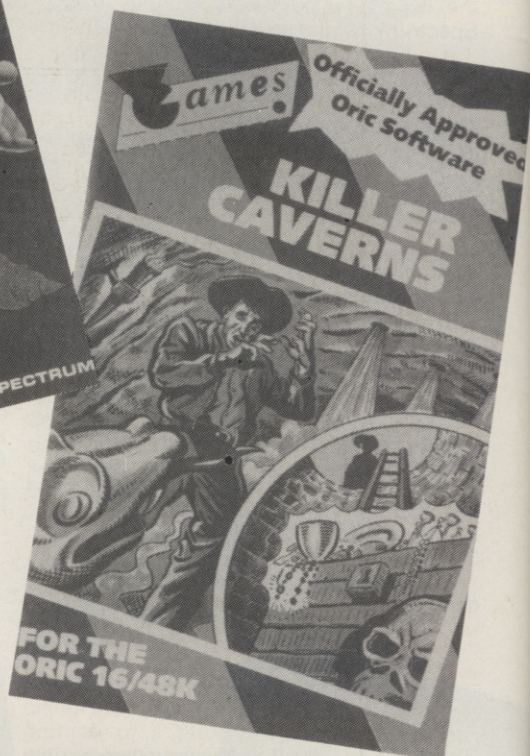
The game is played using the joystick control. When you press fire bottom on the joystick you both fire the laser and drop a bomb, which with a bit of practice is very very handy.

The pricing of this game is warranted with its quality.

There isn't much you can say about such a popular game as this, although left to its own devices the frame will show the whole 'Tunnel' to the very end. A help to see where you've got to go.

There are no instructions supplied with the game apart from those on the screen. As usual no-one has found a run/stop disable and this game is no exception.

A game which would keep the youngster programmers — and some older ones too — happy for hours.



GAME: CRAZY KONG

Made by: Interceptor Software
Price: £5.95

I cannot confess to liking Crazy Kong and this package did not do anything to raise my interest.

The program is based on luck I reckon, as when you jump over the barrel — clear it on the way to the happy landing — 'bang' — your dead for no apparent reason!

If using a joystick — beware — the game disregards diagonal values; the keyboard layout for people without joysticks must have been designed for Zaphod Beeblebrox!

The game claims to be written in machine code but after a tap on the non/stop key quite an extensive program can be listed?!

The game kept me occupied for two days, after that I, and everyone else trying, decided that sheet two perhaps was a bit too higher 'luck' standard for us.

Most of the graphics are made up of sprites, even Kong who seems a bit squared off at the edges.

The instructions are the bare minimum — how to move your little man and battle your way through the screens.

REVIEWS

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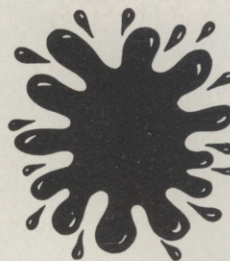
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SNAKE TRAP

By Brian Philips

RUNdown

The program is divided into two parts

Main Variables and Constants

Characters

C1	Rat.
C2	Snake body.
C3-C6	Snake head.
C7	Monster.
C8	Maze.

Colours

The snake is controlled by keys S,X,/, and . but the snake will only turn if there is a clear path ahead.

Line	Action
10-140	Initialises.
150-400	Draws maze.
410-580	Moves snake.
590-850	Moves monsters and drops rats.
860-880	Scoring subroutine.
920-970	Game over/ start new game.

Miscellaneous	
SN	Current snake character.
X%(I),Y%(I)	Monster position.
DX%(I),DY%(I)	Monster direction.
SC	Score.
LN	Length snake.
SL%(I)	Snake position.
A%(I)	Monster central position.

```

510 BD=N-1:IFBD=0THENBD=LN-1
520 TL=N-1:IFTL=LNTHENL=TL
530 SLZ(N)=SLZ(BD)+M
540 POKESLZ(TL),32+POKESLZ(BD),C2:POKESLZ(N)+D,C5
550 IFFK=C1THENGOSUB860
560 IFFK=C7THEN920
570 IFIN=4THENLN=LN+1:IN=0
580 IFLN=21THENLN=20
590 I=INT(RND(1)*9)+1
600 IF1/2<INT(I/2)THENGOTO 640
610 IF1/2<INT(I/2)THENGOTO 750
620 IFFK=32ORPK=33THEN410
630 GOTO920
640 X%(I)=X%(I)+D*(X(I)
650 IFX%(I)=3THEND*(X(I)=-1
660 IFX%(I)=-3THEND*(X(I)=1
670 IFABS(X%(I))=3THENC=C1
680 PK=PEEK(RZ(I)+X%(I))
690 POKERZ(I)+X1%(I),C
700 POKERZ(I)+X1%(I)+D,RC
710 POKERZ(I)+X2(I),C7
720 POKERZ(I)+D+X2(I),MC
730 C=32:V1%(I)=V%(I)
740 GOTO620
750 V%(I)=V%(I)+D*(V(I)
760 IFV%(I)=3THEND*(V(I)=-1
770 IFV%(I)=-3THEND*(V(I)=1
780 IFABS(V%(I))=3THENC=C1
790 PK=PEEK(RZ(I)+22*V%(I))
800 POKERZ(I)+22*V1%(I),C
810 POKERZ(I)+22*V1%(I)+D,RC
820 POKERZ(I)+22*V2(I),C7
830 POKERZ(I)+D+22*V2(I),MC
840 C=32:V1%(I)=V%(I)
850 GOTO620
860 SC=SC+LN*5:PRINT"SCORE:SC:IN=IN+1
870 POKEV,15:FOR=1TO25:POKEI,200-T:NEXTT:POKEV,0
880 RETURN
890 PK=PEEK(SLZ(N)+M)
900 IFFK<C8ANDPK<C2THEN500
910 GOTO490
920 PRINT"SOX[00000000]GAME OVER"
930 GOTO:PRINT"SPRINT"SPRINT"PRESS SPACE BAR"
940 IFSC=HITTHENHH=SC
950 PRINT"SOX"
960 IFA=0 THEN70
970 GOTO920
980 DATA7816,7822,7828,7948,7954,7960,8080,8086,8092
990 DATA1,35,22,38,-1,36,-22,37
READY.

```


fantasy

SOFTWARE

THE PYRAMID is an arcade style game which has a very adventurous feel to it.

The Pyramid contains 120 chambers on 15 levels. In order to get from one chamber to another you must fight off the indigenous aliens to collect an energised crystal which will neutralize the force field guarding the two exits.

The Pyramid is inhabited by a total of 60 wierd and exotic alien types, all of which are beautifully animated. You will meet a whole variety of demons, droids, insects and monsters, with a sprinkling of the more unusual, the extra-terrestrial tweezers, galactic strawberry, cosmic claw, mutant eye, plus a whole host of entities that defy rational description. You will no doubt invent your own nicknames.

You proceed to explore the Pyramid from top to bottom with the difficulty generally increasing with the depth of level. Depending on the choice of exit from each chamber you are likely to have a different game every time you play.

Apart from the challenge of trying to achieve the highest score possible the pyramid contains a number puzzle to solve. The more chambers you successfully visit the more information is gathered to enable you to discover the secret numbers of the pyramid. The puzzle won't take you a few days to solve, it will probably take you a few months.



This is "ZIGGY". He is shown above in his exploratory capsule and is a true representation of the on screen graphics. You have total control over his movements as you explore the many chambers of "THE PYRAMID".

FANTASY SOFTWARE
is available from W.H.Smiths,
John Menzies and
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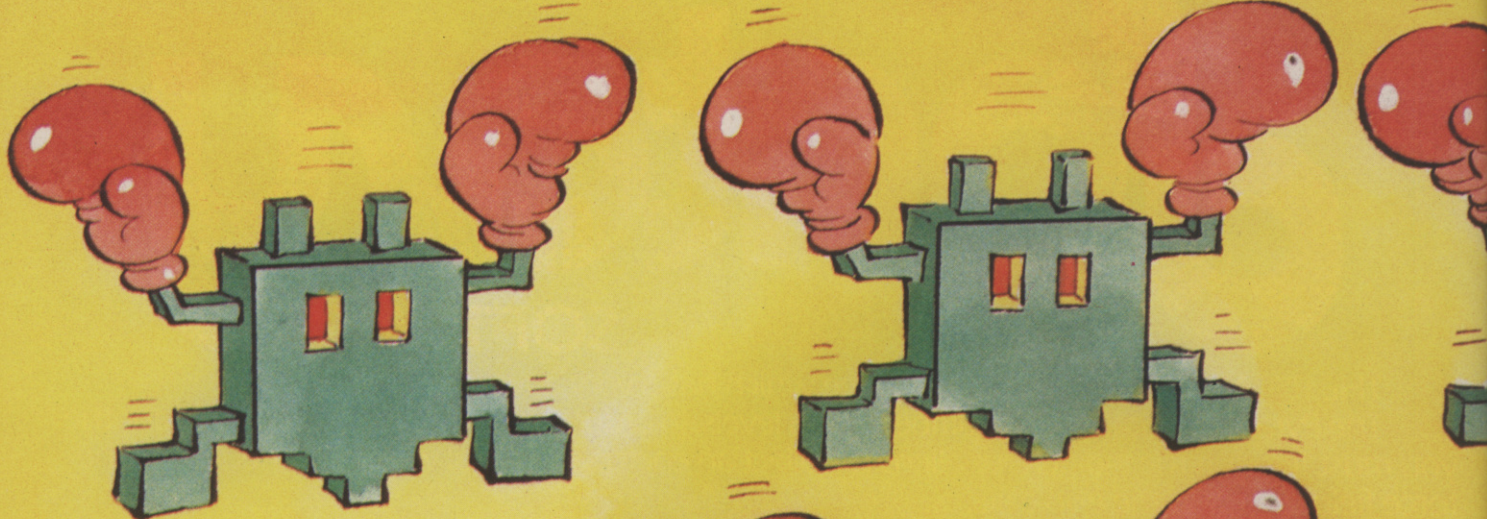
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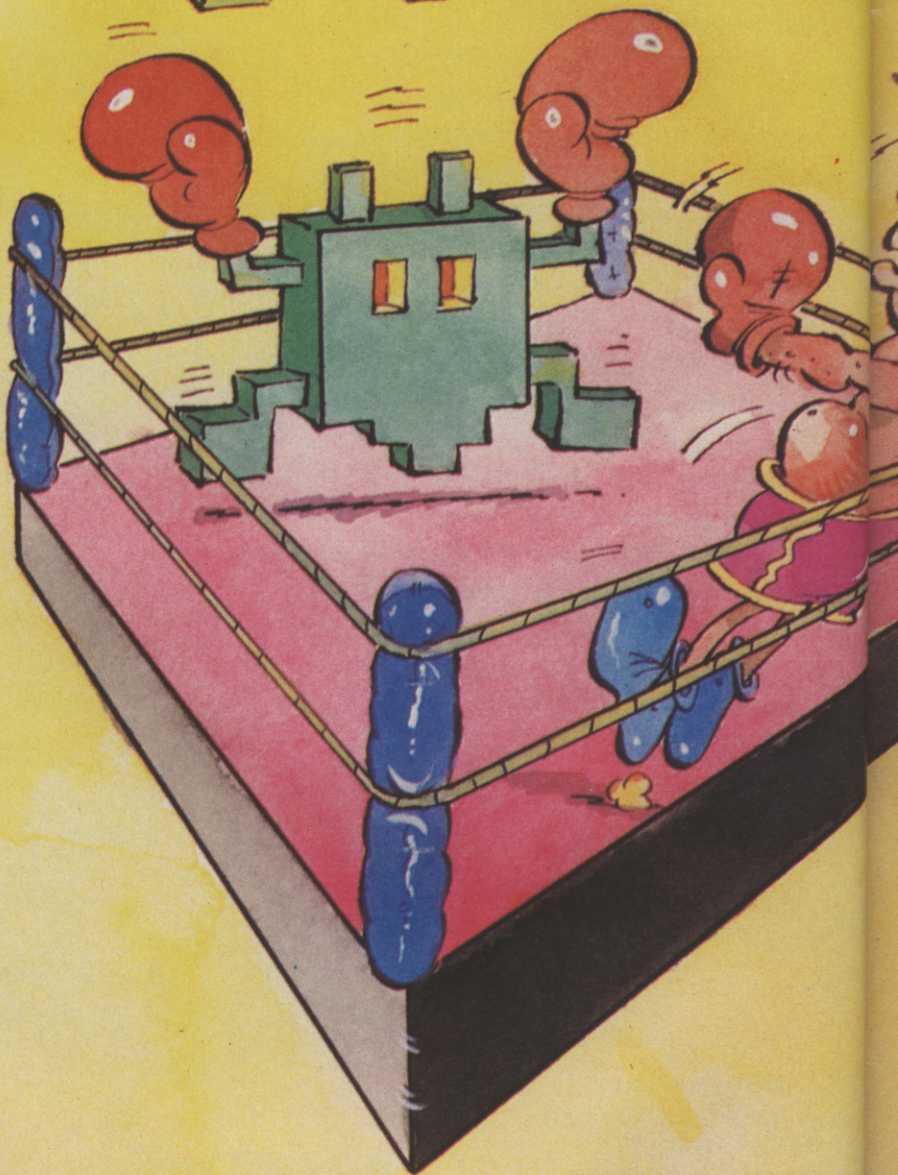


Although this is another version of the over-worked game of Space Invaders our version is well-worth the effort of typing it into your Commodore 64.

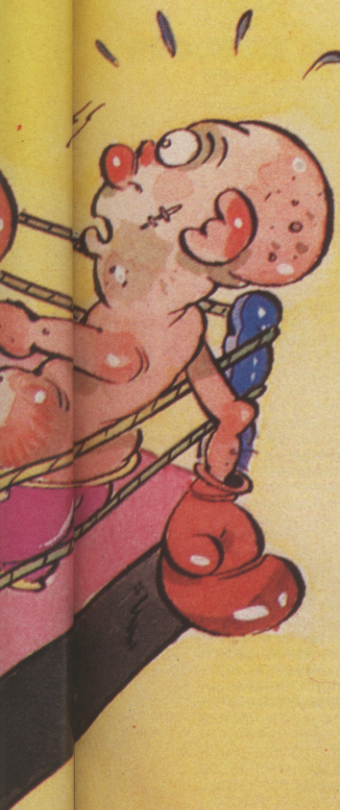
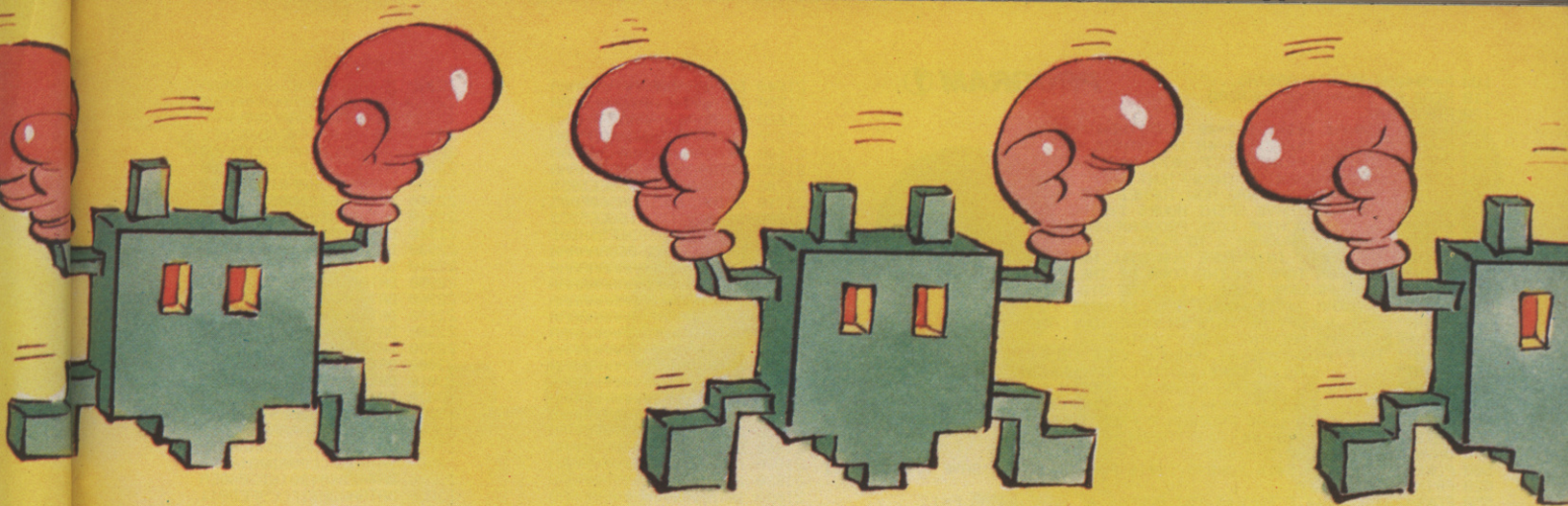
Despite the machine code contained in the program listing and the length of it you'll find this game displays many of the features of the original game. The graphics are great although awkward to achieve because the CBM 64 must be screen POKEd. But don't let that deter you from trying it out. Those long hours of keying will be worth it in the end.

Rundown

Line	Action
90	Sets up the CBM 64 to look like a PET screen.
100-220	The high scores and names are POKEd into this part of the program so it is important that you do not change the length of any of these lines, although you can cheat by changing the names (as long as you always use 16 characters).
230	This is a delay. The GET A\$ is used to slow down the loop. It can be omitted but it has the effect of clearing the keyboard buffer.
240	Checks to see if the machine code has been POKEd in and if so runs the game.
250-320	Gives you the option of poking in the game from data or loading from tape.
330	Sets upper case.
340-520	Sets up the data for and draws the title page.



64 INVADERS



RUNS ON COMMODORE 64

- 530 A delay to allow you to read the title page.
- 540 Clear keyboard buffer.
- 560 Set lower case.
- 2650 List of characters for explosion and defences. These are poked into the machine code.
- 2745 C draws the space invaders on the screen.
- 2730-2790 Puts information on screen from BASIC.
- 2800-2910 Modify data and machine code program from BASIC.
- 2930-2980 Set up shape and strength of defences and position and print on screen.
- 2930-2998 Print multicoloured to screen to set up colour maps. The string is 2995 must be always the same length but you can change the colours you use to suit your television.
- 3050-3730 End of game and High Score routines.
- 3720-3815 INPUT level routines.
- 3830-3980 Modify machine code program to make it harder on the higher levels.
- 4000-4030 Move the screen so that it cannot be seen, fill it with different coloured hashes to alter colour map, then put screen back at 32767 — line 4020 controls the colours on the screen. These can be changed to improve the quality of the display on different monitors.

About the Program

The program loads in two parts. A BASIC program (Program 2) and a machine code program (M/C 64). This is because the CBM 64 IS machine code is very difficult to access so another BASIC program (Program 1) has been written to create the machine code. I advise you to save Program 1 in sections as you type it in, in case you lose any data.

When you have finished typing in the program DO NOT RUN it. Save it first on tape or disc, then type RUN. A number should appear on the screen counting from about 20,000 upwards. If you have typed the listing in correctly a message will appear giving you the option of saving the machine code from memory, saving the BASIC program or loading Program 2.

Program 2 is a normal BASIC program requiring the machine code to be in memory in order to run. Otherwise it will not load from tape.

There are two ways of RUNning 64 Invasion. The first is to load the RUN Program 1, then take option 3 and type Y "are you sure" prompt. The second is to have M/C 64 on tape, load Program 2 and let this load M/C 64. While the program is setting up you may get a load of odd characters filling the screen but don't worry about this, it's quite normal.

A tape of this program is available from *Games Computing, Invaders Tape*, 145 Charing Cross Road, London WC2H 0EE. Price £3.50.

INVASION

100 P=5*4096:PRINT"LOADING..."

110 READ A\$:IF A\$="XXX"THEN200

120 FORI=0TO7

130 H=ASC(MID\$(A\$,I*2+1,1))-48:IFH>9THENH=H-7

140 L=ASC(MID\$(A\$,I*2+2,1))-48:IFL>9THENL=L-7

150 POKEP+I,H*16+L:PRINTP+I*7:NEXT P=P+8:GOTO110

200 IFP+I<>23664THENPRINT"INSUFFICIENT DATA":STOP

205 PRINT" THIS PROGRAM HAS NOW TURNED THE DATA"

210 PRINT" THAT YOU HAVE SPENT HOURS TYPING IN"

220 PRINT" INTO A MACHINE CODE PROGRAM WHICH IS "

230 PRINT" USED BY PROGRAM 2 TO PLAY "

240 PRINT" THE GAME. IN FUTURE YOU WILL NEED THE "

250 PRINT" DATA ON TAPE IN THE FORM OF THE MACHINE"

260 PRINT" CODE PROGRAM LOADED BY LINE 310 OF "

270 PRINT" PROGRAM 2. IT WOULD ALSO BE WISE TO "

280 PRINT" SAVE A COPY OF THIS IN CASE YOU LOSE"

300 F=0:PRINT" THE MACHINE CODE.":PRINT

320 PRINT" TYPE 1 TO SAVE AS MACHINE CODE FILE"

340 PRINT" CALLED CHR\$(34)"M/C.64"CHR\$(34)

360 PRINT" 2 TO SAVE AS A BASIC PROGRAM "

380 PRINT" CALLED CHR\$(34)"DATA"CHR\$(34)

400 PRINT" 3 TO LOAD PROGRAM 2 FROM TAPE"

420 GETS\$:IF VAL\$(S\$)>10OR VAL\$(S\$)>3THEN420

440 ON VAL\$(S\$)GOSUB500,550,600

500 POKE43,0:POKE44,5*16:POKE45,13*16:POKE46,5*16+2:SAVE"M/C.64":F=1

520 PRINT"J":GOTO320

550 POKE43,1:POKE44,8:POKE45,152:POKE46,47:SAVE"DATA":F=1

570 PRINT"J":GOTO320

600 IF THEN700

610 PRINT"YOU HAVE NOT SAVED A COPY OF THIS DATA"

630 PRINT" IF YOU CONTINUE WITH THIS OPTION YOU "

640 PRINT" WILL LOSE THE BASIC PROGRAM AND MAY"

650 PRINT" NOT BE ABLE TO SAVE THIS DATA LATER"

660 GETR\$:IF R\$="Y"THENPRINT"J":GOTO320

670 IF R\$="N"THENPRINT"J":GOTO320

680 IF R\$="Y"THEN700

690 GOTO610

700 LOAD"PROGRAM 2":END

20000 DATA9008DE78392985

20010 DATA09F808510A003E6

20020 DATA0FA50FD00E2610B1

20030 DATA0FC920F0F2C93CF0

20040 DATA034C3050A93E910F

20050 DATA88204050C840F050

20060 DATAD393ED006A920910F

20070 DATAD0D5C900D0D160AA

20080 DATAB10FC96CF013C97B

20090 DATAF00FC97CF00BC97E

20100 DATAF007A93C910F4C67

20110 DATAF00A90C8E9A10F88

20120 DATAE910F20505A8A5

20130 DATA10C983F00160A50F

20140 DATAC9BFB001604CC05A

20150 DATAA0A0D0C6D000160

20160 DATAA5C92AF04C932

20170 DATAF026A900F00260AA

20180 DATAD0D02F0E8EA920

20190 DATASD136020A05860AA

20200 DATAA0A0A0A0A0A0A0A0

20210 DATAA0A0A0A0A0A0A0A0

20220 DATA9258D136020A058

20230 DATA9238D136020A058

20240 DATA60A0A0A0A0A0A0A0

20250 DATAA0A0A0A0A0A0A0A0

20260 DATAA91B8D136020A058

20270 DATAA91D8D136020A058

20280 DATA60A0A0A0A0A0A0A0

20290 DATAA0A0A0A0A0A0A0A0

20300 DATAA0A0A0A0A0A0A0A0

20310 DATAA0A0A0A0A0A0A0A0

20320 DATA9008D2880A9E685

20330 DATA0FA9838510A001C6

20340 DATA0FA50FC9FFD002C6

20350 DATA10B10FC920F0F0C9

20360 DATA3EF0034C351A93C

20370 DATA910FC8204251884C

20380 DATA0F51EAC93CD006A9

20390 DATA20910FD0D2C900D0

20400 DATACE60B10FC96CF013

20410 DATAC97BF00FC97CF00B

20420 DATAC97EF007A93E910F

20430 DATAC46851A9A088EA91

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20460 DATAC0FC9BF001604CC05

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20490 DATAA0A0A0A0A0A0A0A0

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20520 DATACE0870F00160A903

20530 DATAD0870A9208D7780

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20550 DATA0688C00D0F46099

20560 DATA5080A920994F804C

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20580 DATACE0870F00160A903

20590 DATAD0870A9208D5080

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20610 DATAC0C8C029D0F46099

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20630 DATAE951A0A0A0A0A0A0

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20650 DATA0FA9838510A001C6

20660 DATA0FA50FC9FFD002C6

20670 DATA10B10FC920F0F0C9

20680 DATA3EF0034C351A93C

20690 DATA910FC8204251884C

20700 DATA0F51EAC93CD006A9

20810 DATA920910FA029EA5

20820 DATA10C983F00160A50F

20830 DATAC9BFB001604CC05A

20840 DATAB10FC96CF013C97B

20850 DATAF00FC97CF00BC97E

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20870 DATA52A9A0C8EA910F88

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20890 DATA920910FA029EA5

20900 DATAE9A510C983F00160

20910 DATA50FC9BFB001604C

20920 DATAC05AA900D2880A9

20930 DATAC6850FA9038510A0

20940 DATAB10C60FA50FC9FFD

20950 DATAC0C610B10FC920F0

20960 DATAF00C93CF0ECC93EF

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20980 DATAC0C938D0054820B0

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21060 DATAA0A0A0A0A0A0A0A0

21070 DATAA0A0A0A0A0A0A0A0

21080 DATA00A0A0A0A0A0A0A0

21090 DATAA0A0A0A0A0A0A0A0

21100 DATAA0A0A0A0A0A0A0A0

21110 DATA0D460A9038D0660

21120 DATAC0E75620A356EEA7

21130 DATA56EAEAEAEAEAEAE

21140 DATAA000A9AE91FEC8C8

21150 DATA91FEC8C891FEC8C8

21160 DATA99891FEC8C891FE

21170 DATAEE206060A0A0A0A0

21180 DATAA0A0A0A0A0A0A0A0

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21220 DATAA0A0A0A0A0A0A0A0

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21420 DATASD046060A0A0A0A0

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21520 DATAD20A05160A0A0A0A0

21530 DATAA0A0A0A0A0A0A0A0

21540 DATAA0A0A0A0A0A0A0A0

21550 DATAA0A0A0A0A0A0A0A0

21560 DATAA0A0A0A0A0A0A0A0

21570 DATAA0A0A0A0A0A0A0A0

21580 DATAA0A0A0A0A0A0A0A0

21590 DATAA0A0A0A0A0A0A0A0

21600 DATAA0A0A0A0A0A0A0A0

21610 DATAA0A0A0A0A0A0A0A0

21620 DATAA0A0A0A0A0A0A0A0

21630 DATAA0A0A0A0A0A0A0A0

21640 DATAA0A0A0A0A0A0A0A0

21650 DATAA0A0A0A0A0A0A0A0

21660 DATAA0A0A0A0A0A0A0A0

21670 DATAA0A0A0A0A0A0A0A0

21680 DATAA0A0A0A0A0A0A0A0

21690 DATAA0A0A0A0A0A0A0A0

21700 DATAA0A0A0A0A0A0A0A0

21710 DATAAD1761C0D050F005

21720 DATAC921D0F160EE5955

21730 DATAD05955D6F55AD0B

21740 DATA618D056060A0A0A0

21750 DATAA0A0A0A0A0A0A0A0

21760 DATAA0A0A0A0A0A0A0A0

21770 DATAA0A0A0A0A0A0A0A0

21780 DATAA0A0A0A0A0A0A0A0

21790 DATAA0A0A0A0A0A0A0A0

21800 DATAA0A0A0A0A0A0A0A0

21810 DATAA0A0A0A0A0A0A0A0

21820 DATAA0A0A0A0A0A0A0A0

21830 DATAA0A0A0A0A0A0A0A0

21840 DATAA0A0A0A0A0A0A0A0

21850 DATAA0A0A0A0A0A0A0A0

21860 DATAA0A0A0A0A0A0A0A0

21870 DATAA0A0A0A0A0A0A0A0

21880 DATAA0A0A0A0A0A0A0A0

21890 DATAA0A0A0A0A0A0A0A0

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21910 DATAD0034C005AC9FCD0

21920 DATAD0A0C005AEAEAA916

21930 DATA910F60C97EF048C9

21940 DATA7CF044C97BF035C9

21950 DATAC6CF0268DFF5FA9FF

21960 DATAD2756EE2756AD0C

21970 DATAC2DFF5FF004C921

21980 DATAD0F1EE2756AD2756

21990 DATAD8D3C56AD0C62910F

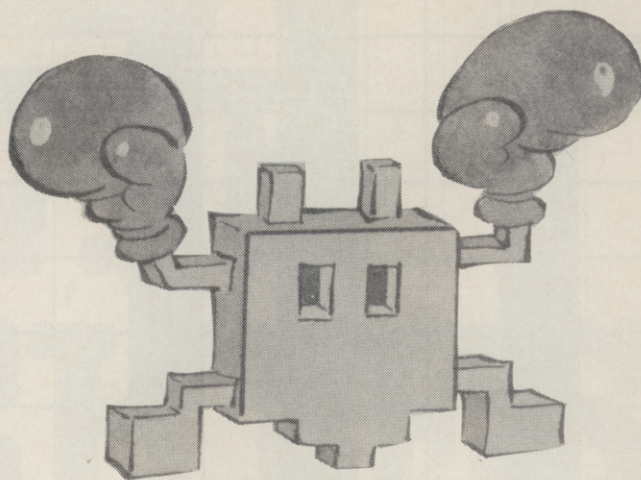
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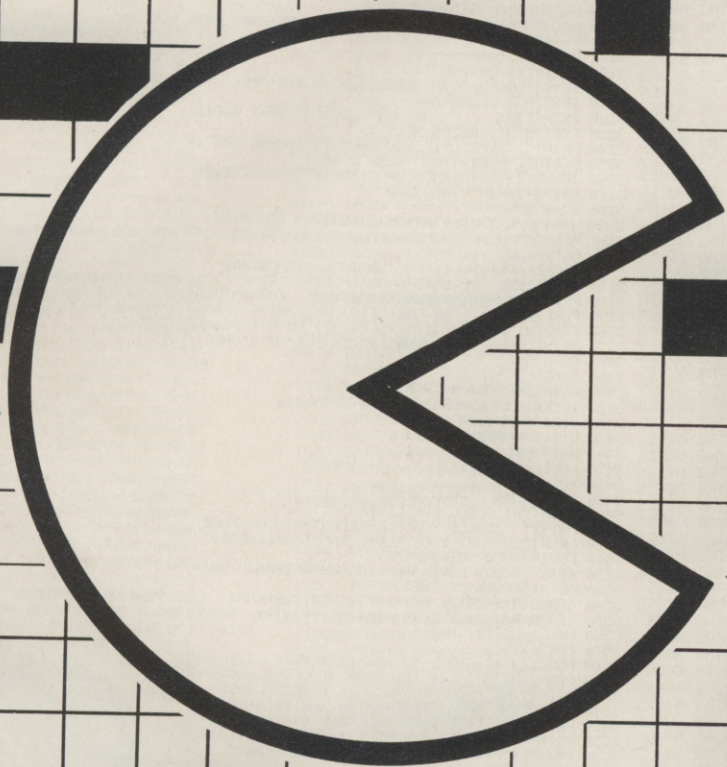
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22020 DATAC9FED0034C005AA9

22030 DATAE910FA9008D0460

22040 DATAC6FF60A0A0A0A0A0

[illegible]



By Daniel Bridge

This is a Pacman type of game but instead of battling against Blinky, Inky and cronies you have to thwart time.

Tempo is used to slow you down. In this maze the power pills are poisonous and can have rather a detrimental effect on your score. If you do hit a power pill you won't be able to renew your sheet unless you eat an eye. Sounds revolting!

Movement of your man is controlled with the traditional **W**, **X**, **A**, and **D** keys.

This would probably be quite an easy game to convert for other machines such as the Commodore 64. It would be necessary to replace the USR routine with a BASIC substitute.

Using the keys **W**, **X**, **A**, **D**, manoeuvre your man around the 'Pac-Man' style maze, eating up the dots as you go. Instead of having the traditional ghosts chasing you, you are up against the clock. Choose the speed you desire to gobble up the most dots in the least time. Your final score is your score divided by your time, multiplied by the number of sheets completed.

If you swallow a 'power pill' points will be deducted from your score! So try to avoid them; if you do hit one, you won't be able to renew your sheet unless you eat the character just below the box of the maze on the right.

Lines 4000 onwards are a USR function which make an INKEY effect work on the Sharp.

Rundown

Lines	Action
1-9	Set up machine code, variables and strings to be used later on.
10-62	Draw maze and dots.
63-70	Draw more poison pills the higher the level.
80	Uses tempo for delay. For a fast game omit this line.
100-119	Check to see what has been eaten, if enough dots have been devoured it calls for a new sheet or if the game is over.
120-145	Decide on direction to be moved in.
150-180	Move, if not trying to go into a wall.
2000-2080	Game over message.
3000-3070	Input speed and time for playing game.
4000-5020	Machine code GET routine.

75

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THE VALLEY



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The Valley is a real-time game of adventure and survival. You may choose one of five character types to be your personal 'extension of self' to battle and pit your wits against a number of monsters. Find treasure, fight a Thunder-Lizard in the arid deserts of the Valley, conquer a Kraken in the lakes surrounding the dread Temples of Y'Nagioth or cauterise a Wraith in the Black Tower. In fact live out the fantasies you've only dared dream about. BUT BEWARE . . . more die than live to tell the tale!

You've read the program (Computing Today — April '82) . . . Now buy the tape. Tape versions (£11.45 each inc P&P and VAT) available for: ZX Spectrum (48K), Atari 400 and 800 (32K) BBC Model A and B, and VIC-20 (with 16K RAM pack).

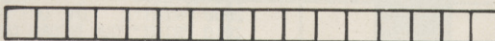
Disc version (£13.95 each inc P&P and VAT) available for: Apple II (DOS 3.3), Sharp MZ-80A and PET 8032 (8050 drives).

A complete reprint of the Valley article is also available for those wishing to do their own conversions for £1.95.

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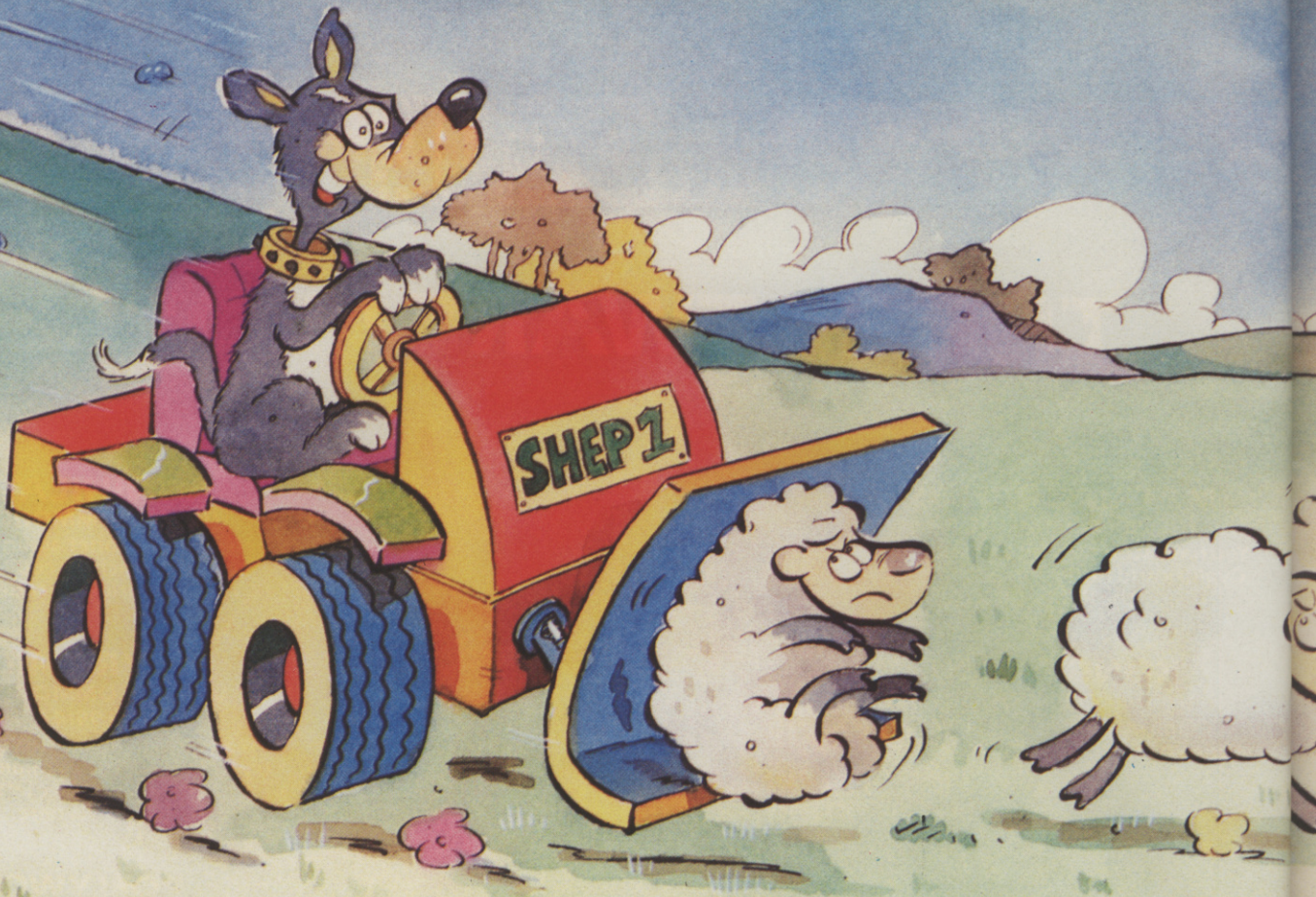
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SHEEPDOG TRIALS

By Steven Bonnett

This Texas game could alter your thoughts of a peaceful life down on the farm to a more frenetic and frustrated outlook.

Sheepdog trial, let's face it, is not an entirely new game as far as the concept goes. But that doesn't detract from the program, nor the game, which will give you a challenging, entertaining and colourful time with your TI. The idea of the game is for you to round up a flock of bleating, lost sheep using your skill as a dog handler to guide your dog to successfully round up the sheep, putting them safely in the farm's pen.

A simple yet fun game for all the family.

Conversion Clues

The screen on the TI99/4A consists of 24 rows by 32 columns, with 1,1 being the top left corner. The screen is accessed by the following built-in routines:

CALL CLEAR fills the screen with spaces.

CALL SCREEN (COLOR) sets screen border to color.

CALL GCHAR (row,col,ch) sets character to ASCII value of character at row, column.

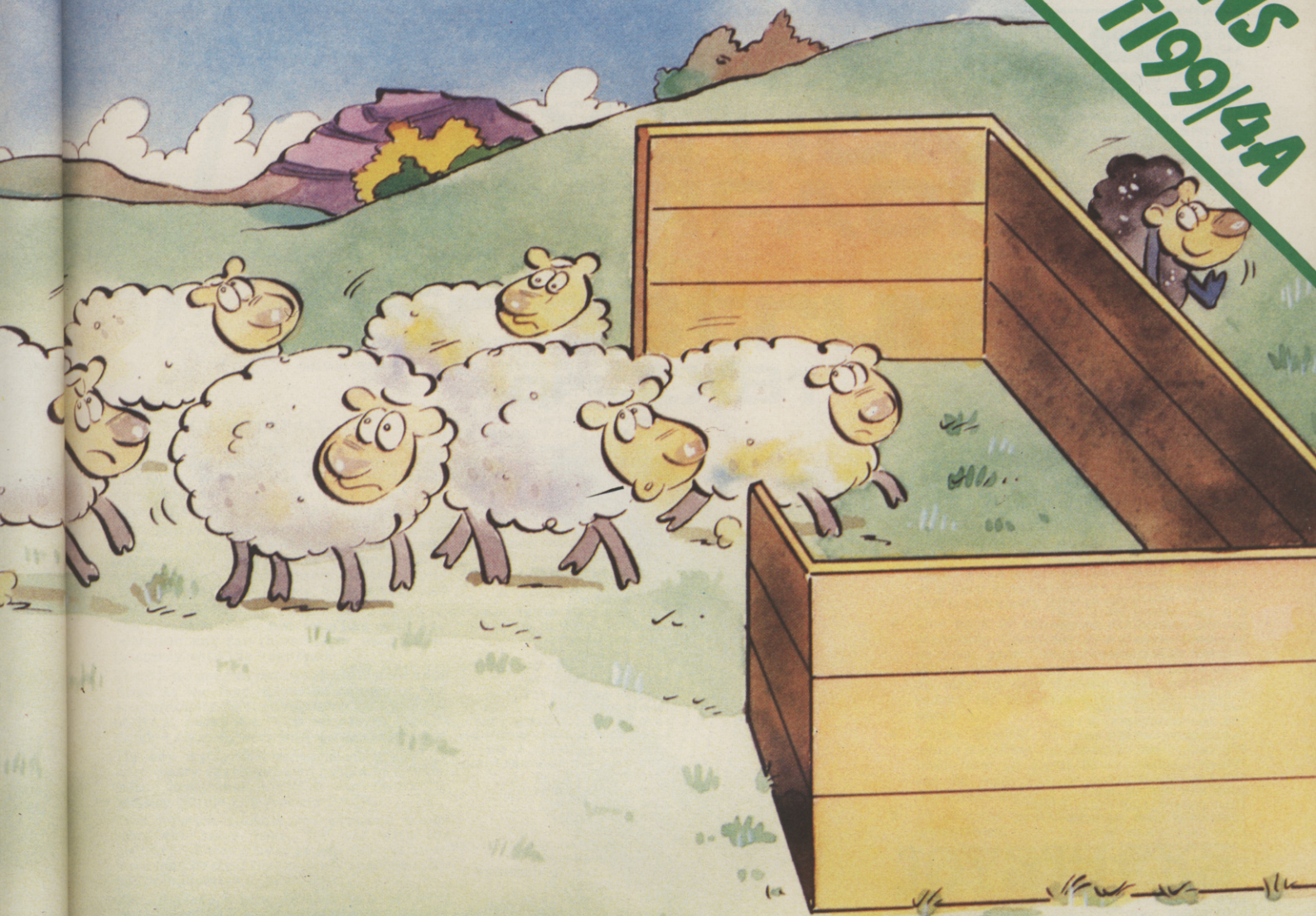
CALL HCHAR (row, col, CH,N) repeats character with ASCII value c, N times

horizontally from left to right starting at row, column.

CALL VCHAR (row,col,CH,N) as for HCHAR except the characters are repeated vertically.

CALL CHAR (CH,A\$) sets the character with ASCII code CH to the bit representation specified by A\$, where A\$ is a string of hex digits. The characters are 8 by 8 pixels, so each set of two hex digits represents one row of the character.

CALL COLOR (G,F,B) sets the foreground color to F and the background color to B of the 8 characters in group G, where characters 32-39 are in group 1, 40-47 are in group 2, etc.



The colour codes are as follows:

TRANSPARENT	1
BLACK	2
MEDIUM GREEN	3
LIGHT GREEN	4
DARK BLUE	5
LIGHT BLUE	6
DARK RED	7
CYAN	8
MEDIUM RED	9
LIGHT RED	10
DARK YELLOW	11
LIGHT YELLOW	12
DARK GREEN	13
MAGENTA	14
GREY	15
WHITE	16

RUNdown

Lines	Action
100-410	Print instructions.
420-440	Make sheep transparent while they are being placed.
470	Sets the limit.
490-620	Place the sheep in field.
630-690	Define fence characters.
700-890	Draw pen and boundary fences.
900-920	Place dog.
940-990	Define sheep shape and colour.
1000-1060	Define dog.
1080	Get any input into K (memory).
1100-1110	Decrement and check time limit.
1120	Check keyboard status.
1150-1270	Check new dog position.
1280-1290	Bark.
1320-1390	Draw dog in new position.

1400	Random sheep—movement routine.
1430	Picks a sheep to move.
1470-1490	Calculate new position of sheep.
1500-1540	Draw sheep in new position.
1550-1570	Update sheep position.
1590-1650	Move sheep away from barking dog.
1660-1700	Draw sheep in new position.
1760-1850	Count number of sheep in pen.
1860-1960	Print appropriate stop message.

Main Variables

XSHEEP, YSHEEP	X,Y co-ordinates of sheep.
TIME	Time left to play.
XD, YD	X,Y co-ordinates of dog.
SHINPEN	Number of sheep in pen.

```

110 REM SHEEP-DOG
120 REM BY S BONNETT
130 REM
140 CALL CLEAR
150 PRINT "DO YOU WANT INSTRUCTIONS"
160 INPUT "(Y/N)" A$
170 IF SEG$(A$,1,1)="N" THEN 420
180 CALL CLEAR
190 REM PRINT INSTRUCTIONS

```

```

200 PRINT "MOVE THE DOG USING"
210 PRINT
220 PRINT "THE ARROW KEYS (ESXD)"
230 PRINT
240 PRINT "SPACE MAKES THE DOG BARK"
250 PRINT
260 PRINT "HERD THE SHEEP INTO THE "
270 PRINT
280 PRINT "PEN BY MOVING ROUND BEHIND"

```

```

290 PRINT
300 PRINT "THEM AND BARKING."
310 PRINT
320 PRINT "GET ALL THE SHEEP INTO THE"
330 PRINT
340 PRINT "PEN BEFORE YOU RUN OUT OF "
350 PRINT
360 PRINT "TIME "
370 PRINT

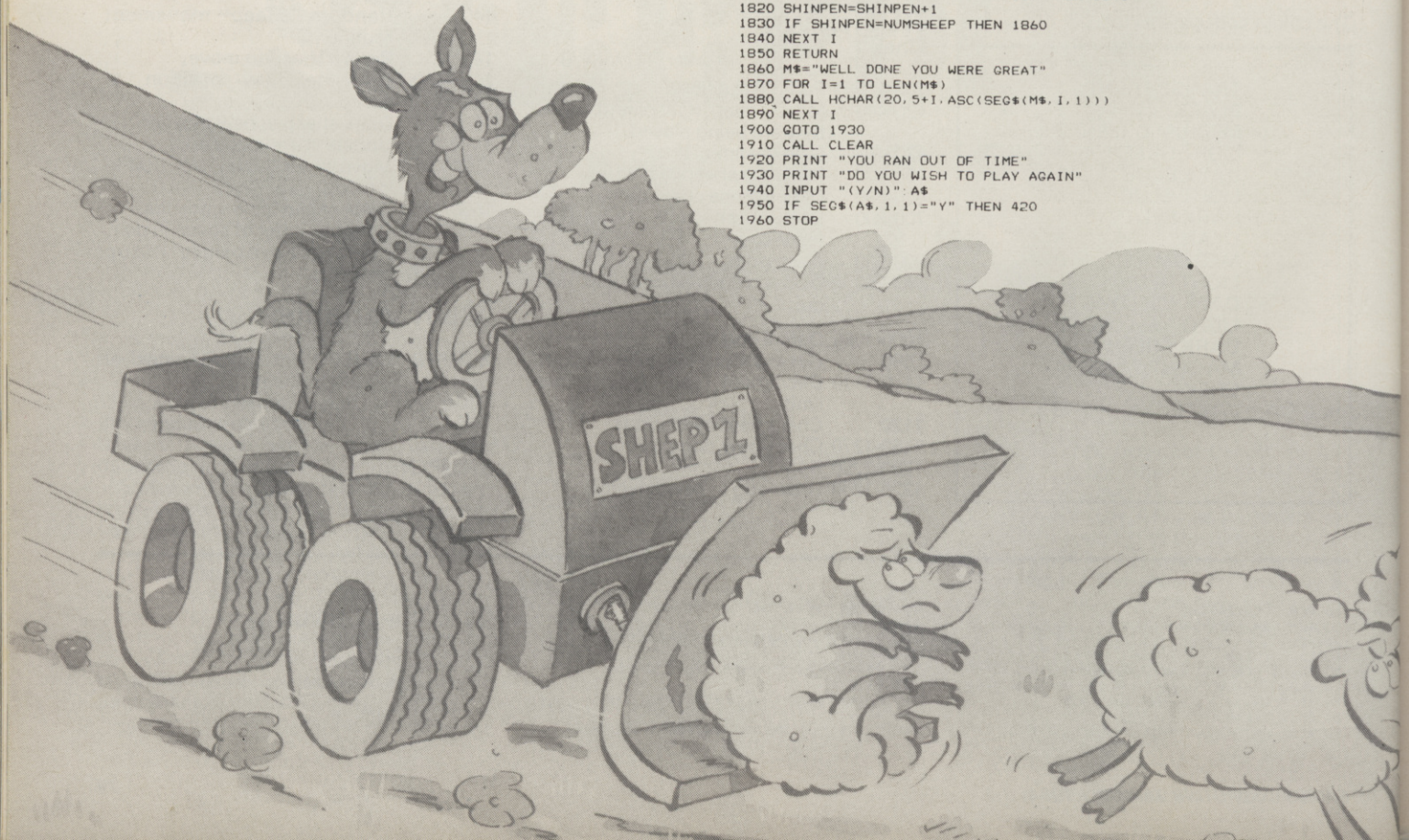
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```

380 PRINT
390 PRINT "PRESS ANY KEY TO CONTINUE"
400 CALL KEY(O,K,S)
410 IF S=0 THEN 400
420 RANDOMIZE
430 CALL CLEAR
440 CALL COLOR(10,1,1)
450 CALL COLOR(13,1,1)
460 DIM XSHEEP(10),YSHEEP(10)
470 TIME=450
480 NUMSHEEP=INT(RND*8)+1
490 REM PLACE SHEEP
500 FOR SH=1 TO NUMSHEEP
510 XSHEEP(SH)=INT(RND*15)+15
520 YSHEEP(SH)=INT(RND*22)+2
530 IF (XSHEEP(SH)<10)*(YSHEEP(SH)<10) THEN 510
540 CALL GCHAR(YSHEEP(SH),XSHEEP(SH),CH)
550 IF CH<>32 THEN 510
560 REM 8 IS PROBABILITY OF WHITE SHEEP
570 IF RND>8 THEN 610
580 CALL HCHAR(YSHEEP(SH),XSHEEP(SH),128)
590 GOTO 620
600 REM BLACK SHEEP
610 CALL HCHAR(YSHEEP(SH),XSHEEP(SH),110)
620 NEXT SH
630 CALL CHAR(104,"0000FF")
640 REM INITIALISE EDGE CHARACTERS
650 CALL CHAR(105,"0B0B0B0B0B0B0B0B")
660 CALL CHAR(106,"0000FF0B0B0B0B0B")
670 CALL CHAR(107,"0000FF0B0B0B0B0B")
680 CALL CHAR(108,"0B0B0F")
690 CALL CHAR(109,"0B0BFB")
700 REM DRAW BOUNDARY
710 CALL HCHAR(1,1,104,32)
720 CALL HCHAR(24,1,104,32)
730 CALL VCHAR(1,1,105,24)
740 CALL VCHAR(1,32,105,24)
750 REM DRAW PEN
760 CALL HCHAR(6,6,104,6)
770 CALL VCHAR(6,6,105,5)
780 CALL VCHAR(6,12,105,5)
790 CALL HCHAR(10,6,104,2)
800 CALL HCHAR(10,11,104,2)
810 REM DRAW CORNERS
820 CALL HCHAR(1,1,106)
830 CALL HCHAR(6,6,106)
840 CALL HCHAR(1,32,107)
850 CALL HCHAR(6,12,107)
860 CALL HCHAR(10,6,108)
870 CALL HCHAR(24,1,108)
880 CALL HCHAR(24,32,109)
890 CALL HCHAR(10,12,109)
900 REM PLACE DOG
910 YD=5
920 XD=5
930 CALL SCREEN(12)
940 REM DEFINE SHEEP
950 A$="003C7FDFFF3F1212"
960 CALL CHAR(128,A$)
970 CALL CHAR(110,A$)
980 CALL COLOR(13,16,1)
990 CALL COLOR(10,2,1)
1000 REM DEFINE DOGS
1010 DOG$="1030F1323E1E1236"
1020 CALL CHAR(98,DOG$)
1030 CALL COLOR(9,9,1)
1040 CALL VCHAR(YD,XD,98)
1050 TAIL$="1034F2323E1E1236"
1060 CALL CHAR(99,TAIL$)
1070 REM START OF MAIN LOOP
1080 CALL KEY(O,K,S)
1090 GOSUB 1400
1100 TIME=TIME-1
1110 IF TIME<1 THEN 1910
1120 IF S=0 THEN 1170
1130 NEWY=YD
1140 NEWX=XD
1150 ON POS("EXDS ",CHR$(K),1)+1 GOTO 1170,1200,1220,1240,1260,1290
1160 REM NO INPUT-WAG TAIL
1170 CALL GCHAR(YD,XD,CH)
1180 CALL HCHAR(YD,XD,98+99-CH)
1190 GOTO 1080
1200 NEWY=YD-1
1210 GOTO 1330
1220 NEWY=YD+1
1230 GOTO 1330
1240 NEWX=XD+1
1250 GOTO 1330
1260 NEWX=XD-1
1270 GOTO 1330
1280 REM BARK
1290 CALL SOUND(65,131,2,-6,2)
1300 GOSUB 1590
1310 GOTO 1080
1320 REM RE-DRAW DOG
1330 CALL GCHAR(NEWY,NEWX,CH)
1340 IF CH<>32 THEN 1080
1350 CALL HCHAR(NEWY,NEWX,98)
1360 CALL HCHAR(YD,XD,32)
1370 XD=NEWX
1380 YD=NEWY
1390 GOTO 1080
1400 REM MOVE SHEEP
1410 REM 3 IS PROBABILITY OF NO SHEEP MOVING
1420 IF RND>3 THEN 1580
1430 SH=INT(RND*NUMSHEEP)+1
1440 X=XSHEEP(SH)
1450 Y=YSHEEP(SH)
1460 REM 5 IS FLOCKING FACTOR
1470 FLOCK=-(RND>5)
1480 X=X+(1-FLOCK)*(2*(RND>5)+1)+SGN(XSHEEP(1)-XSHEEP(SH))*FLOCK
1490 Y=Y+(1-FLOCK)*(2*(RND>5)+1)+SGN(YSHEEP(1)-YSHEEP(SH))*FLOCK
1500 CALL GCHAR(Y,X,CH)
1510 IF CH<>32 THEN 1580
1520 CALL GCHAR(YSHEEP(SH),XSHEEP(SH),CH)
1530 CALL HCHAR(Y,X,CH)
1540 CALL HCHAR(YSHEEP(SH),XSHEEP(SH),32)
1550 XSHEEP(SH)=X
1560 YSHEEP(SH)=Y
1570 GOSUB 1760
1580 RETURN
1590 REM MOVE SHEEP AWAY FROM BARK
1600 FOR SH=1 TO NUMSHEEP
1610 X=XSHEEP(SH)
1620 Y=YSHEEP(SH)
1630 IF ((X-XD)^2+(Y-YD)^2)>17 THEN 1740
1640 X=X+SGN(X-XD)
1650 Y=Y+SGN(Y-YD)
1660 CALL GCHAR(Y,X,CH)
1670 IF CH<>32 THEN 1740
1680 CALL GCHAR(YSHEEP(SH),XSHEEP(SH),CH)
1690 CALL HCHAR(Y,X,CH)
1700 CALL HCHAR(YSHEEP(SH),XSHEEP(SH),32)
1710 YSHEEP(SH)=Y
1720 XSHEEP(SH)=X
1730 GOSUB 1760
1740 NEXT SH
1750 RETURN
1760 REM COUNT SHEEP IN PEN
1770 SHINPEN=0
1780 FOR I=1 TO NUMSHEEP
1790 X=XSHEEP(I)
1800 Y=YSHEEP(I)
1810 IF (X<7)+(X>11)+(Y<7)+(Y>10) THEN 1840
1820 SHINPEN=SHINPEN+1
1830 IF SHINPEN=NUMSHEEP THEN 1860
1840 NEXT I
1850 RETURN
1860 M$="WELL DONE YOU WERE GREAT"
1870 FOR I=1 TO LEN(M$)
1880 CALL HCHAR(20,5+I,ASC(SEG$(M$,I,1)))
1890 NEXT I
1900 GOTO 1930
1910 CALL CLEAR
1920 PRINT "YOU RAN OUT OF TIME"
1930 PRINT "DO YOU WISH TO PLAY AGAIN"
1940 INPUT "(Y/N)";A$
1950 IF SEG$(A$,1,1)="Y" THEN 420
1960 STOP

```



AGF

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The interface does not interfere with key operation and can therefore be used simultaneously with the keyboard.

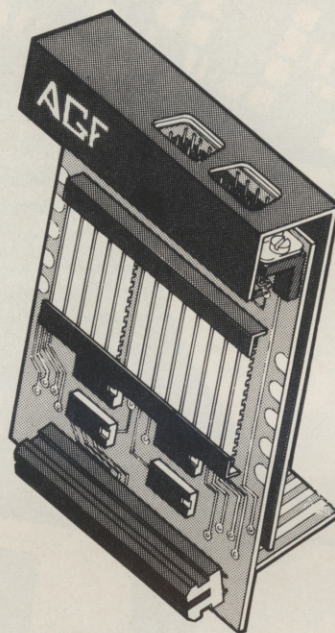
There is no need to remove the interface once fitted as the rear extension connector will accommodate further expansion, i.e. printers or RAM packs etc. This important feature avoids excessive wear to the expansion port.

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- Programmable Interface Module as illustrated, complete with clip-on programming leads.
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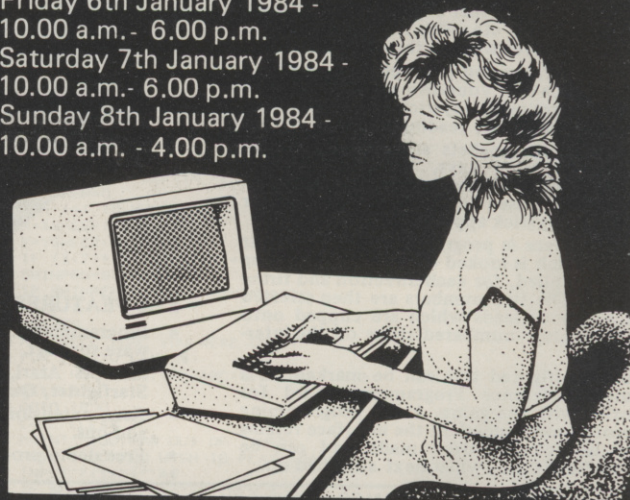
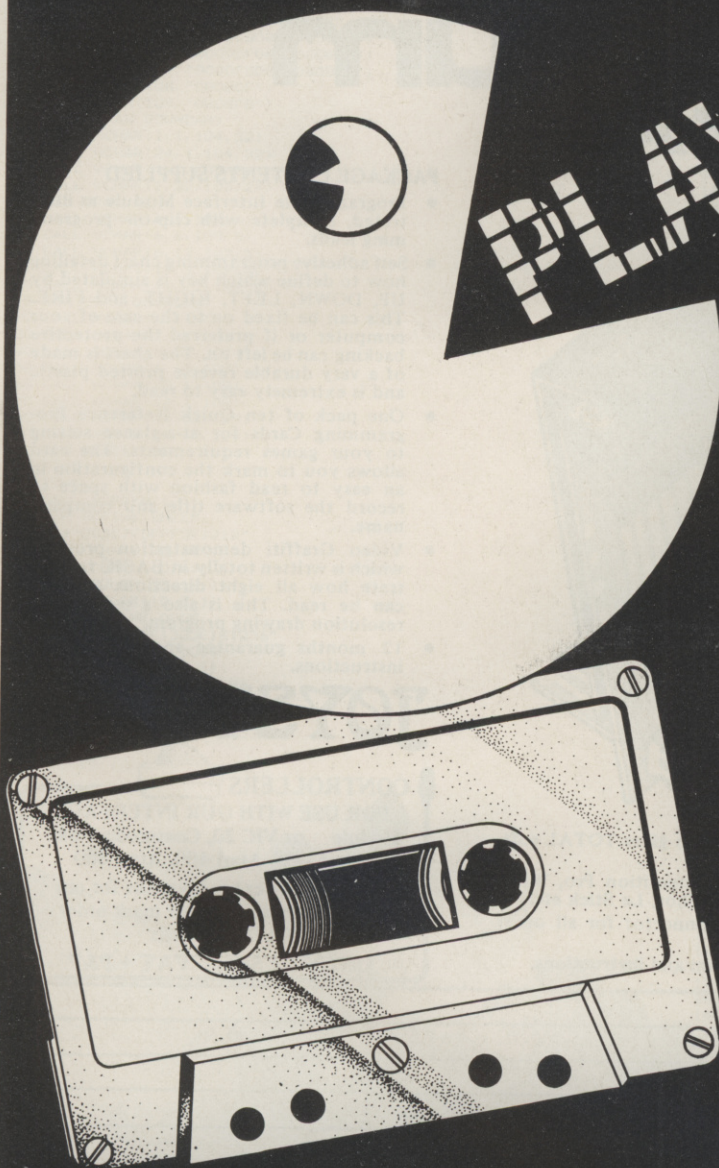
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THE LONDON HOME COMPUTER SHOW

RUNAWAY ROBOT

Runs on a
SPECTRUM 48K

By Jon Smith and Simon N Goodwin

Runaway Robot is a fast, original, colour graphics game for any ZX Spectrum. The program has been carefully written so that it is relatively easy to convert for other computers.

The year is 2083, and the affairs of the planetary federation are controlled by the massive super-computer SPAM (Seven Planets Administrative Machine). SPAM is so large and intricate that it has to be maintained by a squad of robots which roam its corridors checking for faults and carrying out repairs whenever necessary. SPAM would have to be shut down completely before a human could enter its sealed environment.

Unfortunately, one of the maintenance robots has run wild. A fault in its command circuitry means that the robot cannot stop moving at top speed. It is trapped in the middle of the super-computer, careering wildly back and forth, damaging the intricate components which control the economy of seven planets. Already all the Martian income tax records for the last ten years have been scrambled. If further damage occurs interplanetary trade could collapse!

You have been rocketed up to the SPAM control centre on Titan (one of Jupiter's moons). It is imperative that you bring the robot under control. Limited command circuits have been established, but it has not been possible to halt the robot. You must steer it away from the heart of the computer before it finally goes haywire and explodes.

Playing The Game

When you RUN the program it will ask you how many players wish to take part. Type 1 or 2. If you select the two player game, each player will have to bring a different runaway robot under control. The players take turns to guide their robots through sections of the super-computer.

Press the "q" key to turn the robot towards the top of the screen, and press "a" to turn it in the opposite direction. Use the "o" and "p" keys to turn the robot left and right. Make sure the CAPS LOCK is not set, otherwise the keys will not be recognised. You can alter them if you wish by substituting different characters in line 140.

Scattered between the wiring-banks of SPAM you will find purple storage cells — batteries for the maintenance robots. These restore the energy supply, making it possible for you to move the robot further from the critical parts of the super-computer.

You cannot leave a section of SPAM until you have collected all the batteries in it. As the game goes on you will move into increasingly complex parts of the super-computer. There are more batteries

in the outer sections, but the wiring pattern is more dense so you must take extra care to avoid damaging SPAM.

Each time the runaway robot collides with the circuitry it loses energy. When the energy (shown at the bottom of the screen) reaches zero the robot will explode...

Hints On Play

As the game progresses the wiring inside the computer will become more and more complex, but there will always be a route to each of the storage cells. There are 30 different 'levels' of wiring. At high levels the number of batteries is increased as well as the cost of collisions and the complexity of the maze.

It is easy to overshoot junctions unless you control the robot carefully. If you



press the required key just before the robot reaches a turning you will not overshoot. Once your robot has crashed it goes out of control, bouncing randomly back and forth until you steer it away from the obstruction. Take control again quickly or the robot will destroy itself.

The key to playing *Runaway Robot* well is choosing the best possible route through the circuitry of SPAM. Try to select the shortest possible path between the storage cells. To do this you should look around the design as you move, constantly planning ahead. The robot uses up energy every time it changes direction.

There are two times at which you can study the circuitry without having to control the robot at the same time. Before you move through each section of the computer you will see the wiring build up on the screen. Once the complete section is drawn the storage cells are positioned, and a fanfare sounds. You then have four seconds in which to study the wiring before the robot starts to move. If you don't need this time then you can start immediately by pressing a direction key.

Summing Up

The heart of *Runaway Robot* is the random circuit generator, which produces an almost infinite number of different mazes. In each maze you are guaranteed that a path will exist between every point, so you can never end up 'trapped' however complicated the maze is.

The random circuit generator can be used to produce mazes in any other game you care to design. It uses simple graphics (a corner, horizontal and vertical lines), and requires a minimum graphics resolution of only 31 by 21, so it should run with few changes on almost any computer.

The Solar System is counting on you. The Interplanetary Revenue Service will reward you if you can save their records from destruction. What right-thinking sentient being could resist such a challenge?

RUNdown

Lines	Action
100	The main program starts at line 200. The two most often used subordinates have been entered at the beginning of the listing so that they can be found quickly by BASIC. The game would be slower if they were at the end of the program.
110-160	Read the Spectrum keyboard. If a direction key is pressed return with the direction number (1 to 4) stored in 'direction'. If no key is pressed, keep the old direction.
170-190	Draw a 'star' (circuit junction) in the odd-numbered row and column specified by 'x' and 'y'.
200-280	Set up the program and then play the game over and over again for each player.
290-300	Store the most commonly-used values in variables. This makes the program slightly shorter, but it is not necessary unless you plan to add large amounts of extra code.
310-320	Tell the computer the size of the screen, in rows (Y) and columns (X).
330	Reserve space so that the details of two players can be stored.
340	Stop the Spectrum keyboard auto-repeat (this speeds up the game).
350-400	Set up two arrays which determine the relationship between

'direction' and X and Y coordinates. Store the graphics for the robot in each direction (right, down, left, up) in E\$. Define the graphics for the batteries and circuitry.

410-500

510-600

610-620

630

640-650

660-670

680-690

700-780

790-800

810-830

Let the user select a one or two player game. Put the starting energy into E(), the level into L(), and the score into S().

Let one player play. Fetch the results so far. If it is a two player game then say who is to play next.

Call up the parts of the program which do the real work!

Save the results so far and return.

Work out how many times you must fail to place a connection before you decide that the circuit is 'complete'.

Clear the screen to a white area 31 printing positions across by 21 down.

Draw wiring between random points until the circuit is complete.

Join junctions with a horizontal line (character 146) or a vertical line (character 147) depending upon the direction.

Move on, unless the edge of the screen has been reached or the next point is an existing junction.

840-870

880-890

900-930

940-990

1000

1010

1020

1030

1040-1050

1060-1080

1090

1100

1110-1120

1130-1150

1160

1170-1190

1200-1210

Carry on selecting new directions, but don't go back the way you came.

Record that more wiring has been placed. If the section is not complete then try to lay another wire.

Prepare to play the game.

Position batteries (character 144) randomly. The higher the value of 'skill' the more batteries appear.

Draw the robot at the start.

Record how many batteries must be found.

Print the scores so far.

Fanfare and wait for four seconds.

Read the keys and prepare for movement.

See if we have hit a wall or a battery.

Move the robot. If all the batteries have gone then stop.

Read the keys. Move on unless they have changed.

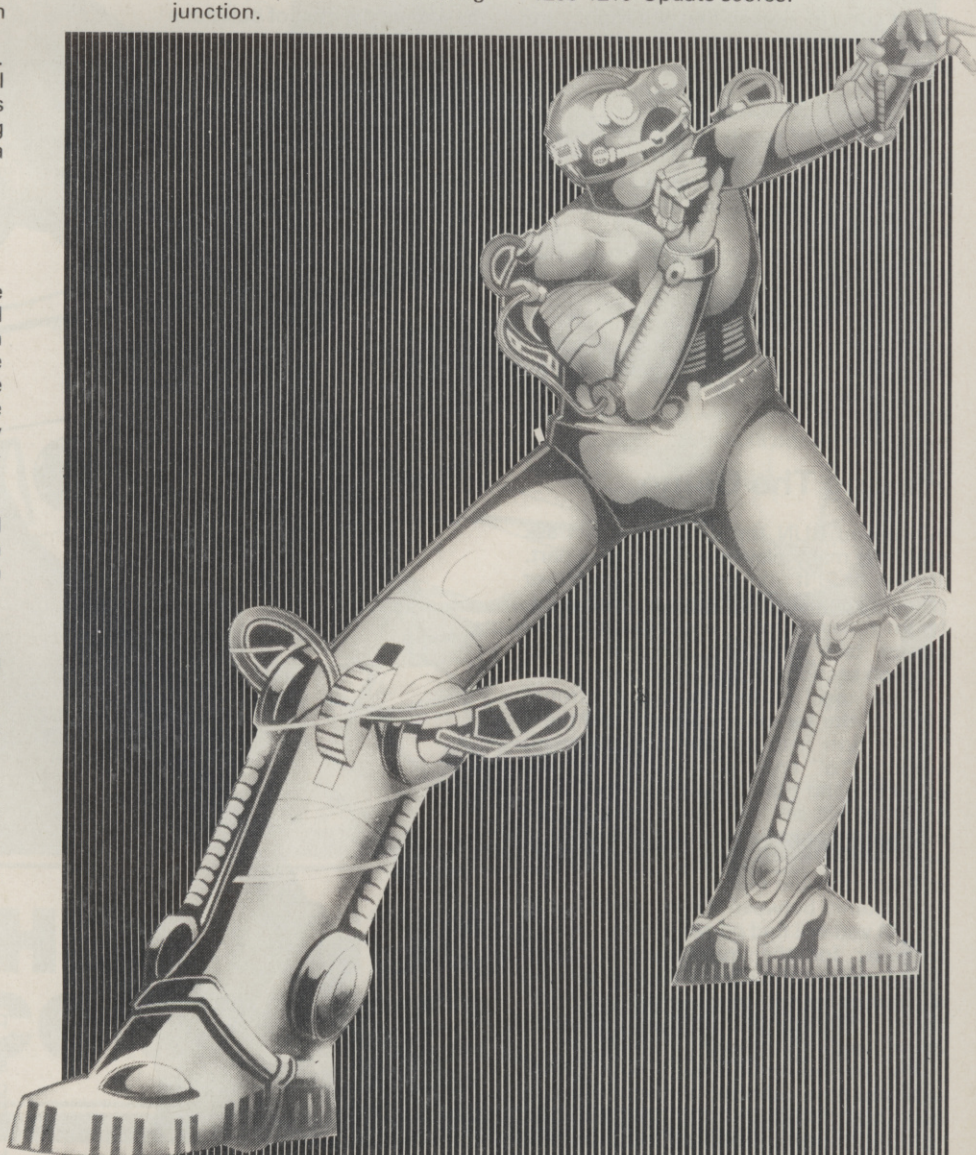
Lose energy if the robot has turned, then move again.

If a wall has been hit then punish the player accordingly.

Increase energy — battery found.

Section cleared — play a jingle.

Update scores.



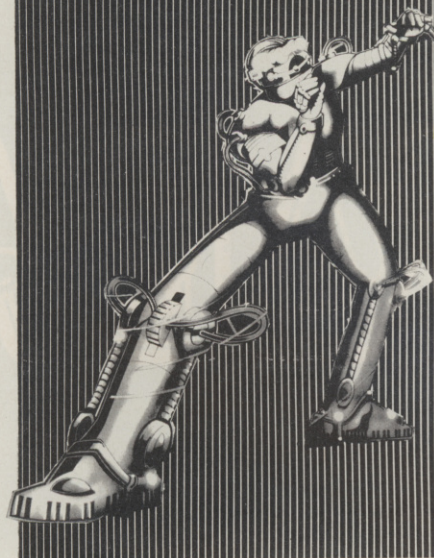
- 1220 The runaway robot will run no futher...
 1230-1260 Show final score.
 1270-1330 End of game. Show both scores and request another game.
 1340-1370 Time delay.

Conversion Clues

Runaway Robot is not a difficult game to convert to run on a different computer, as long as the machine allows you to position characters on a 31 column by 21 row area. There are only three POKES in the program — these should be missed out on computers other than the Spectrum. You will have to replace the Spectrum user-defined graphics with your own, so omit lines 410-490.

Characters are positioned on the Spectrum display using the PRINT AT Y,X; CHR\$(N); statement. This positions character N at row Y, column X. Co-ordinate 0,0 is the top left hand corner of the display. In the program the following special (user-defined) characters are used:

- CHR\$(144) Battery.
 CHR\$(145) Junction.
 CHR\$(146) Horizontal line.
 CHR\$(147) Vertical line.
 CHR\$(148) Robot facing left.
 CHR\$(149) Robot facing right.
 CHR\$(150) Robot facing vertically.



For example, the statement PRINT AT 31,1;"!" would position an exclamation mark at the right-hand end of the second lines of the display.

The Spectrum does not have a convenient facility for identifying user-defined graphics once they have been printed, so the ATTR(Y,X) function is used to find the colour at a given character position. ATTR(Y,X) is 56 if the character at posi-

tion Y,X is wiring, and 59 if the character is a battery.

The game uses the Spectrum's INK, PAPER and BORDER statements to select colours. In fact it will work (in principle) in black and white, so long as ATTR is replaced by a function which describes the character at a given place on the screen. the INK, PAPER and BORDER statements should, consequently, be omitted. Likewise, the BEEP statements, used for sound effects, are only needed on a Spectrum. You may replace them with the equivalent command on your computer, but the program will still work if they are absent.

Once you have converted the game as written it is possible to increase the size of the circuits generated, so that the whole of your display area is used. Alter the X and Y values in lines 310 and 320 to change the size of circuits. The number of columns is stored in 'sxmax' and the number of rows is in 'symax'. Both values must be even.

The CODE function is the equivalent of ASC in other versions of BASIC — it returns the ASCII code of a character. IN-KEY\$ returns a single character if a key is pressed — otherwise it returns an empty string (''). The CLS command clears the display.

Armed with all that useful information to help you play this great game, you're bound to have the time of your life. So go out and get those robots!

```

100 GO TO 200
110 REM look for a key
120 LET t$=INKEY$
130 IF t$="" THEN RETURN
140 LET d=(one AND t$="p")+(two AND t$="a")+(three AND t$="o")+(four AND t$="q"

150 IF d<>0 THEN LET direction=d
160 RETURN
170 REM draw a star
180 PRINT AT y+y+one,x+x+one;CHR$ (145)
190 RETURN
200 REM Start of program
210 GO SUB 0290: REM initialize
220 GO SUB 0510: REM setup vars
230 FOR n=one TO numplayers
240 GO SUB 0610: REM do this player
250 NEXT n
260 IF more THEN GO TO 230: REM still alive?
270 GO SUB 1270
280 GO TO 220
290 REM initialize
300 LET zero=0: LET one=1: LET two=2: LET three=3: LET four=4: LET seven=7
310 LET sxmax=30
320 LET symax=20
330 DIM e(two): DIM l(two): DIM e(two): REM player data
340 POKE 23562,0
350 DIM X(four): DIM Y(four): REM steps to take to move in each cardinal direct
360 DATA 1,0,149,0,1,150,-1,0,148,0,-1,150
370 DIM E$(four): DIM P$(one): REM pictures
380 FOR i=one TO four
390 READ X(i),Y(i),x: LET E$(i)=CHR$ (x)
400 NEXT i
410 REM define user graphics
420 FOR x=zero TO 55: READ y: POKE USR "A"+x,y: NEXT x
430 DATA 63,67,253,133,133,133,134,252
440 DATA 24,60,126,231,231,126,60,24
450 DATA 0,0,0,255,255,0,0,0
460 DATA 24,24,24,24,24,24,24,24
470 DATA 28,28,4,124,28,12,4,12
480 DATA 56,56,32,62,56,48,32,48
490 DATA 60,60,24,60,60,126,66,231
500 RETURN
510 PAPER four: BORDER four: CLS
520 PRINT AT 9,4: INK one: PAPER 5:"HOW MANY PLAYERS(1,2)?"
530 LET t$=INKEY$: IF t$="" THEN GO TO 0530
540 IF t$="2" OR t$="1" THEN CLS : PRINT AT 9,7: PAPER 5: INK one:"PLEASE ENTER
1 or 2": GO SUB 1340: GO TO 0510
550 LET numplayers=CODE (t$)-48
560 FOR i=one TO numplayers
570 LET s(i)=zero: LET e(i)=400: LET l(i)=5
580 NEXT i
590 LET more=numplayers
600 RETURN
610 LET energy=e(n): LET score=s(n): LET skill=l(n): IF energy<=zero THEN RETURN
620 IF numplayers=two THEN PAPER four: BORDER four: CLS : PRINT AT 9,12: PAPER
5: INK one:"PLAYER 1:": GO SUB 1340
630 GO SUB 0660: GO SUB 0900: REM draw maze and play
640 LET e(n)=energy: LET s(n)=score: LET l(n)=skill: IF energy<=zero THEN LET m
ore=more-one
650 RETURN
660 REM draw maze
670 LET maxcount=skill*20: IF maxcount>300 THEN LET maxcount=300: REM set compl
exity of maze
680 BORDER zero: PAPER seven: INK two: CLS : INK zero
690 FOR x=zero TO 31: PRINT AT 21,x;CHR$ (143): NEXT x: FOR y=21 TO zero STEP
-one: PRINT AT y,31;CHR$ (143): NEXT y
700 LET count=zero
710 REM chose a random start
720 LET x=INT (RND*sxmax/2): LET y=INT (RND*symax/2)
730 LET sxloc=x+one: LET syloc=y+one: IF ATTR (syloc,sxloc)=56 THEN GO TO 0
800
740 LET direction=one+INT (RND*four): LET oppdir=direction+two: IF oppdir>four
THEN LET oppdir=oppdir-four
750 LET len=one+INT (RND*two)
760 LET dx=X(direction)
770 LET dy=Y(direction)
780 GO SUB 170: PRINT AT y+y+dy+one,x+x+dx+one:
790 IF dx=zero THEN PRINT CHR$ (147): GO TO 0810
800 PRINT CHR$ (146):
810 LET x=x+dx: LET y=y+dy
820 IF x<zero OR x>sxmax/2 OR y<zero OR y>symax/2 THEN GO TO 0880
830 IF ATTR (y+y+one,x+x+one)=56 THEN GO TO 0880
840 LET len=len-one
850 IF len<=zero THEN GO TO 0780
860 LET direction=one+INT (RND*four): IF direction=oppdir THEN GO TO 0860: REM
no double back
870 GO TO 750
880 LET count=count+one: IF count>maxcount THEN GO TO 0720
890 RETURN
900 REM play the game
910 PAPER seven: INK one
920 LET xloc=zero: LET yloc=20: REM start coord of robot
930 PRINT AT 21,2: PAPER four: INK one:"SCORE: ";AT 21,16:"ENERGY: ";
940 FOR i=one TO skill
950 BEEP .05,40-i
960 LET cx=INT (RND*sxmax): LET cy=INT (RND*symax-one)
970 IF ATTR (cy,cx)=56 OR ATTR (cy,cx)=59 THEN GO TO 0960
980 PRINT AT cy,cx: INK three;CHR$ (144)
990 NEXT i
1000 PRINT AT yloc,xloc;CHR$ (149):
1010 LET noprize=skill
1020 GO SUB 1200
1030 BEEP .5,0: BEEP 1,7: PAUSE 200
1040 REM Main loop
1050 GO SUB 110: LET olddir=direction: LET dx=X(direction): LET dy=Y(direction):
LET p$=E$(direction)
1060 LET nxloc=xloc+dx: LET nyloc=yloc+dy
1070 IF ATTR (nyloc,nxloc)=56 OR nxloc<zero OR nyloc<zero OR nyloc>21 THEN GO T
O 1130
1080 IF ATTR (nyloc,nxloc)=59 THEN GO TO 1140
1090 PRINT AT yloc,xloc: ":": PRINT AT nyloc,nxloc;p$: LET xloc=nxloc: LET yloc
=nyloc: IF noprize=zero THEN GO TO 1170
1100 GO SUB 110: IF direction=olddir THEN GO TO 1060
1110 LET energy=energy-skill: GO SUB 1200: IF energy<=zero THEN GO TO 1220
1120 GO TO 1050
1130 GO SUB 120: IF direction<olddir THEN GO TO 1050: REM Check for last-minute
change
1140 LET energy=energy-skill: GO SUB 1200: LET olddir=direction: LET direction=
ne+INT (RND*four): GO SUB 110: IF energy<=zero THEN GO TO 1220
1150 BEEP .01,20: GO TO 1050
1160 BEEP .01,zero: LET score=score+skill: LET energy=INT (energy+45*RND): GO S
UB 1200: LET noprize=noprize-one: GO TO 1090
1170 LET skill=skill+one: FOR i=1 TO 20: BEEP .02,i: NEXT i
1180 GO SUB 1340
1190 RETURN
1200 PRINT AT 21,8: INK one: PAPER four;score;AT 21,23: " ";AT 21,23;energy;
1210 RETURN
1220 FOR i=zero TO seven: BORDER 7-i: PAPER i: CLS : NEXT i: PAPER four: BORDER
four: CLS : PAPER one: INK 5: FLASH one
1230 IF numplayers=two THEN PRINT AT 8,12:"PLAYER 1: ";s(one);AT 9,10:"PLAYER 2: ";s(two)
1240 PRINT AT 9,21:"YOU JUST RAN OUT OF ENERGY.": PRINT AT 10,6:"YOUR SCORE WAS:
";score; GO SUB 1340
1250 FLASH zero
1260 RETURN
1270 PAPER four: BORDER four: CLS
1280 IF numplayers=two THEN PRINT AT 5,6: FLASH one: INK one: PAPER 5:"SCORES: ";
AT 7,10: FLASH 0:"PLAYER 1: ";s(one);AT 9,10:"PLAYER 2: ";s(two)
1290 PRINT AT 14,7: PAPER 5: INK one:"DO YOU WANT TO PLAY?": AT 15,11:"AGAIN?Y,N)?
":
1300 LET t$=INKEY$: IF t$="" THEN GO TO 1300
1310 IF t$="y" THEN GO SUB 1340: RETURN
1320 IF t$="n" THEN POKE 23562,5: PAPER seven: BORDER seven: INK zero: CLS : STO
P
1330 CLS : PRINT AT 14,6: PAPER 5: INK one:"PLEASE ENTER Y OR N": GO SUB 1340:
CLS : GO TO 1290
1340 FOR i=one TO 200: NEXT i: RETURN : REM delay
1350 REM ** RUNAWAY ROBOT
1360 REM ** 1983 Jon Smith
1370 REM ** & Simon N Goodwin

```


BOMBARD

By Ben Craig

Bombard is a deadly contest fought out in deep space between Earth Base and Alien. Two players take it in turn to control these two sworn enemies, using either the keyboard or joysticks. The alien must try to land on top of the Earth Base, while the Earth Base must dodge and shoot to give him bonus time. A difficult task indeed.

Variables Used

SC() Each player's score.
 AE x co-ordinates of EARTH BASE (and missile).
 AEM y co-ordinates of MISSILE.
 AS x co-ordinates of ALIEN.
 PL Player one or two as EARTH BASE.
 JOY TRUE — players using joysticks.
 FALSE — players using keys.
 T + X% Waiting loops.
 LI Lives.
 H y co-ordinates of ALIEN.
 X Fire button tests — used in PROCFREEZE.
 E% End instructions; start game if true.
 LIVES Lives left.
 F Print LIVES.
 P Pitch of note.
 D Length of note.
 Bombard\$ 'Bombard' in fancy letters.

'PROC' names

PROCInstructions = Prints instructions.
 PROCNOPLAY = Plays tunes.
 PROCALIENDESTROYED = Gives ten seconds bonus.
 PROCSTARS = Prints stars.
 PROCKEYS = Checks for movement/fire keys pressed.
 PROCWHATKEYS Displays movement/fire keys.
 PROCFREEZE = Freezes game.
 PROCENDGAME = Displays scores after game.
 PROCNAME = Prints 'BOMBARD' in fancy letters.

ZAP

Graphics Symbols

200 Missile
 201 Alien
 202 Missile when stationary
 203 Earth base
 204 Alien ahead
 250 BO
 251 M
 252 BA
 253 RD

Program Structure

90-110 Gets the program ready to run.
 120 Transfers control to lines 890-850 which prints instructions, etc.
 130-200 Defines variables.
 300-650 Main loop.
 660-780 Earth Base Destroyed.
 810-880 End of Game.
 970-2350 Various procedures.

POW

```

10 REM *****
20 REM *
30 REM * ** BOMBARD **
40 REM *
50 REM * (c) 1983 Ben Craig.
60 REM *
70 REM *****
80 REM
90 ENVELOPE 1,5,0,0,0,0,0,0,126,-5,-10,-10,126,100
100 ONEROTIFERR=17RUN ELSE MODE7:REPORT:PRINT in line "ERL:END
110 DIM SC(1)
120 PROCCHR
130 GOTDB90
140 MODE 2
150 *FX 9,1
160 *FX 10,1
170 VDU23;B202;0;0;0;
180 AE=10
190 AEM=30
200 AS=10
210 FOR PL=0 TO 1
220 COLOUR 0
230 PRINT "Player "PL;" as "EARTH BASE."
240 COLOUR 3
250 IF PL=1 AND JOY=FALSE PRINT "SWAP KEYS"
260 VDU23;B202;0;0;0;
270 T=TIME:REPEATUNTILTIME>T+200
280 TIME=0
290 FOR LI=1 TO 3
300 REPEAT
310 CLS
320 PROCSTARS
330 H=2
340 REPEAT
350 COLOUR2
360 IFAEM<30PRINTTAB(AE,AEM)CHR$(200) ELSE PRINTTAB(AE,29)CHR$(204)
370 PRINTTAB(AS,H)CHR$(201):*FX10,20
380 *FX9,20
390 *FX10,20
400 COLOUR10:PRINTTAB(AS,H-1)CHR$(202)
410 *FX9,1
420 *FX10,1
430 COLOUR 5
440 PRINTTAB(6,0):INT(TIME/100)
450 PRINTTAB(AE-1,50) "CHR$(203):"
460 PRINTTAB(AE,29) "
470 FOR W=1 TO 100
480 NEXT
490 IF INKEY(-68)PROCFREEZE
500 PRINTTAB(AS,H) "
510 PRINTTAB(AS,H-1) "
520 IFAEM<30PRINTTAB(AE,AEM) "
530 IFJOY=FALSE PROCKEYS:GOTO590
540 IFPL=OANDADVAL(3)<22000ANDAS<17AS=AS+1 ELSE IFPL=1ANDADVAL(1)<22000ANDAS<17
AS=AS+1
550 IFPL=OANDADVAL(3)<42000ANDAS>1AS=AS-1 ELSE IFPL=1ANDADVAL(1)<42000ANDAS>1A
S=AS-1
560 IFPL=OANDADVAL(1)<22000ANDAE<17AE=AE+.5 ELSE IFPL=1ANDADVAL(3)<22000ANDAE<1
7AE=AE+.5
570 IFPL=OANDADVAL(1)<42000ANDAE>1AE=AE-.5 ELSE IFPL=1ANDADVAL(3)<42000ANDAE>1
AE=AE-.5
580 X=ADVAL(0)AND3:IFPL=OANDX=1 AND AEM=30 AND H<20 AEM=29 ELSEIFPL=1ANDX=2 AN
D AEM=30 AND H<20 AEM=29
590 IFAEM<30ANDAEH>OEM=AEM-1
600 IFAEM>OEM=30
610 H=H-1
620 IF INT(AE)=AS AND AEM=H AND AEM<30 PROCALIENDESTROYED
630 UNTILH>29
640 SOUND 810,1,5,10
650 UNTILAS=INT(AE)
660 COLOUR 12
670 PRINTTAB(6,0)"Alien has destroyed earth base!"
680 FOR N=1 TO 50
690 GCOL 0,RND(7):MOVE 67.5*AE,50:DRAWNRD(1279),RND(1023)
700 COLOURRND(7)
710 PRINTTAB(6,0):TIME DIV 100;"":TIME MOD 100:SPC(5)
720 SOUND 1,-15,N,1
730 NEXT
740 SOUND 0,-15,5,10
750 AE=10
760 AEM=30
770 AS=10
780 NEXT
790 MODE7
800 SC(PL)=TIME DIV 100:PRINT "CHR$(141);CHR$(134):"You lasted ";SC(PL);" sec
s."VDU141,134:PRINT" You lasted ";SC(PL);" secs."
810 VDU23;B202;0;0;0;
820 PRINTCHR$(141);CHR$(133);"
830 PRINTCHR$(141);CHR$(133);"
840 FOR N=1 TO 5000:NEXT
850 MODE 2
860 NEXT
870 MODE 7
880 PROCENDGAME
890 EX=FALSE
900 MODE2:PROCNAME:MODE7
910 PROCNOPLAY
920 PROCInstructions
930 PROCWHAKEYS
940 X=ADVAL(0)AND3
950 IF EX=FALSE GOTD910
960 GOTD 140
970 DEFPROCInstructions
980 CLS
990 PRINTTAB(10);VDU141,131,157,129:PRINT"BOMBARD "VDU156:PRINTTAB(10);VD
U141,131,157,129:PRINT"BOMBARD "VDU156
1000 PRINT "CHR$(129)"Who's who "TAB(15)CHR$(134)"One player is the "TAB(15)
CHR$(134)"EARTH BASE in"CHR$(133)"pink" TAB(15)CHR$(134)"The other is the ALIEN"
TAB(15)CHR$(134)"in"CHR$(130)"green."
1010 PRINT CHR$(129)"Aim of game "TAB(15)CHR$(134)"The ALIEN must try to"TAB
(15)CHR$(134)"destroy the EARTH BASE "TAB(15)CHR$(134)"by landing on it."TAB(15)
CHR$(134)"The EARTH BASE must try"TAB(15)CHR$(134)"to dodge out of the"
1020 PRINTTAB(15)CHR$(134)"way. The EARTH BASE"TAB(15)CHR$(134)"may shoot down
the ALIEN"
1030 PRINTCHR$(129)"Competitions "TAB(15)CHR$(134)"Take it in turns to "TAB(1
5)CHR$(134)"be EARTH BASE, The one"TAB(15)CHR$(134)"with the highest score"TA
B(15)CHR$(134)"against the other is"TAB(15)CHR$(134)"the winner."
1040 PRINT "CHR$(131);CHR$(136)"Press SPACE or FIRE to start game."
1050 FOR N=1 TO 7000
1060 X=ADVAL(0)AND3
1070 IF X<JOY=TRUE:EX=TRUE:ENDPROC
1080 IF INKEY(-99)JOY=FALSE:EX=TRUE:ENDPROC
1090 NEXT
1100 ENDPROC
1110 DEFPROCNOPLAY

```

```

1120 RESTORE
1130 CLS
1140 VDU 23;B202;0;0;0;
1150 PRINT "CHR$(141);CHR$(136);CHR$(129)"Welcome to the game of"CHR$(130)"BO
MBARD"
1160 PRINTCHR$(141);CHR$(136);CHR$(129)"Welcome to the game of"CHR$(130)"BOMBAR
D"
1170 PRINTTAB(0,23)CHR$(141);CHR$(150)"k1";CHR$(146);"k1";CHR$(149)"k1";CHR$(13
0);"By Ben Craig";CHR$(149);"<7";CHR$(146);"<7";CHR$(150);"<7"
1180 PRINTCHR$(141);CHR$(150)"k1";CHR$(146);"k1";CHR$(149)"k1";CHR$(130);"By Be
n Craig";CHR$(149);"<7";CHR$(146);"<7";CHR$(150);"<7"
1190 FOR T=1 TO 39
1200 READ P,D
1210 IF INKEY(-99)JOY=FALSE:EX=TRUE:ENDPROC
1220 X=ADVAL(0) AND 3
1230 IF X<JOY=TRUE:EX=TRUE:ENDPROC
1240 IF P>0SOUND 1,1,P,D ELSE SOUND 1,0,0,D
1250 NEXT
1260 ENDPROC
1270 DEFPROCALIENDESTROYED
1280 COLOUR 12
1290 PRINTTAB(0,10)"ALIEN IS DESTROYED"
1300 PRINT "Ten seconds bonus"
1310 T=TIME
1320 SOUND 0,-7,5,200
1330 FOR N=100 TO 1000 STEP 100
1340 PRINTTAB(6,0):INT(TIME/100)
1350 REPEATUNTILTIME>T+N
1360 SOUND 1,-15,100,10
1370 NEXT
1380 H=1:AE=10
1390 AEM=30
1400 CLS:PROCSTARS
1410 ENDPROC
1420 REM
1430 REM ***** French Revolution *****
1440 REM
1450 DATA 121,4,121,7,121,4,141,9,141,9,149,9,149,9,169,15,157,4,141,11
1460 REM
1470 REM
1480 REM ***** Yankee Doodle *****
1490 REM
1500 DATA 0,20,53,10,53,10,61,10,69,10,53,10,69,10,61,10,33,10,53,10,53,10,61,1
0,69,10,53,20,49,20,53,10,53,10,61,10,69,10,73,10,69,10,61,10,53,10,49,10,33,10,
41,10,49,10,53,20,53,20
1510 DEFPROCSTARS
1520 COLOUR 5
1530 PRINTTAB(0,0)"SCORE:"INT(TIME/100);" LIVES:"
1540 LIVES=3-LI
1550 FOR F=0 TO LIVES
1560 PRINTCHR$(203);
1570 NEXT
1580 VDU 5
1590 FOR N=1 TO 50
1600 GCOL0,RND(7)
1610 MOVE RND(1279),RND(1023)
1620 PRINT"."
1630 NEXT
1640 FOR N=1 TO 10
1650 GCOL0,RND(7)
1660 MOVERND(1279),RND(1023)
1670 PRINT"*"
1680 NEXT
1690 VDU 4
1700 ENDPROC
1710 DEFPROCKEYS
1720 IF INKEY(-67)ANDAS<17AS=AS+1
1730 IF INKEY(-98)ANDAS>1AS=AS-1
1740 IF INKEY(-104)ANDAE<17AE=AE+.5
1750 IF INKEY(-103)ANDAE>1AE=AE-.5
1760 IF INKEY(-74)AND AEM=30 AND H<20 AEM=29
1770 ENDPROC
1780 DEFPROCWHAKEYS
1790 CLS
1800 VDU 141,145:PRINTTAB(10)"jz jz jz jz"
1810 VDU 141,145:PRINTTAB(10)"jz jz jz jz"
1820 VDU 141,129:PRINTTAB(10)"K e y s"
1830 VDU 141,129:PRINTTAB(10)"K e y s"
1840 VDU 141,145:PRINTTAB(10)"jk jk jk jk"
1850 VDU 141,145:PRINTTAB(10)"jk jk jk jk"
1860 PRINT "TAB(10)CHR$(130)"Z = ALIEN left"
1870 PRINTTAB(10)CHR$(130)"X = ALIEN right"
1880 PRINT TAB(10)CHR$(133)"< = EARTH BASE left"
1890 PRINT TAB(10)CHR$(133)"> = EARTH BASE right"
1900 PRINTTAB(5)CHR$(133)"RETURN = EARTH BASE fire"
1910 PRINT TAB(10)CHR$(129)"F = Freeze/Unfreeze game"
1920 PRINT "CHR$(134)"Or use joysticks with fire button for"CHR$(134)"EARTH BA
SE to FIRE."
1930 PRINT "CHR$(131);CHR$(136)"Press SPACE or FIRE to start game."
1940 FOR N=1 TO 7000
1950 X=ADVAL(0)AND3
1960 IF X<JOY=TRUE:EX=TRUE:ENDPROC
1970 IF INKEY(-99)JOY=FALSE:EX=TRUE:ENDPROC
1980 NEXT
1990 ENDPROC
2000 DEFPROCFREEZE
2010 X=TIME
2020 FORN=1 TO2000
2030 NEXT
2040 REPEATUNTILINKEY(-68)
2050 FOR N=1 TO 200
2060 TIME=X
2070 NEXT
2080 ENDPROC
2090 DEFPROCENDGAME
2100 VDU23;B202;0;0;0;
2110 FOR N=0 TO 2
2120 PRINT "VDU141,130:PRINT"Player "N+1;" scored ";SC(N);" points."
2130 VDU141,130:PRINT"Player "N+1;" scored ";SC(N);" points."
2140 NEXT
2150 T=TIME:REPEATUNTILTIME>T+500
2160 ENDPROC
2170 DEFPROCCHR
2180 VDU23,200,16,56,124,124,124,124,254,0
2190 VDU23,201,24,60,90,126,36,66,0,0
2200 VDU23,202,0,0,0,0,0,0,24,24
2210 VDU23,203,24,60,126,255,255,24,24,24
2220 VDU23,204,0,0,0,0,0,24,24,24,60
2230 VDU23,250,247,149,149,149,229,149,149,247
2240 VDU23,251,125,85,85,85,85,85,85,85
2250 VDU23,252,238,42,42,46,202,42,42,234
2260 VDU23,253,236,170,170,202,170,170,170,172
2270 BOMBARD=CHR$(250)+CHR$(251)+CHR$(252)+CHR$(253)
2280 ENDPROC
2290 DEFPROCNAME
2300 FOR N=1 TO 20
2310 COLOURRND(15)
2320 PRINT TAB(RND(13))BOMBARD$
2330 NEXT
2340 A=INKEY(200)
2350 ENDPROC

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Runs on a BBC



WESTMINSTER

By Stephen Knight

Westminster is a role-playing game which runs on a VIC-20 with at least 8K of memory expansion. The instructions for play are in the text, so I will concentrate here on the programming side of things. The program for *Westminster*, although long, is fairly simple.

Obviously the main limitation is memory, and those of you who only have an 8K expansion should be warned the program will only just fit. If you have more, however, you may like to consider adding more features. To help you with this, and to assist the owners of other machines who wish to convert the program I will give an explanation of what the program does. Also, I have included a full variable list to help you along and those who wish to increase their chances of success may like to alter some initial values.

The idea of the game is to reach the upper echelons of power in a fictitious government. Obviously the more successful a politician you prove to be the higher your score at the end of the game will be.

Variable List

S1	The lowest of the four voices of the VIC. SI+1 to SI+5 gives all four and the screen/border colour control.
H	Support for you in the house.
E	Support for you amongst the electorate.
M	Your own morale rating.
T	The count of how many years have passed in this game.
A	The count of how many years have passed since the last election.
R	Your present rank.
D	Your allocation of time to ministerial duties.
C	Your allocation of time to constituency duties.
P	Your allocation of time to parliamentary duties.
F	Your allocation of time to family duties.
J	Number used during selection of random events.
Q1-Q8	Amount of votes given to each party during election.
VI-V4	Percentages estimated in opinion poll.

A\$ Generally used in input lines.
All other variables used are either local situations or as 'Flags'.

RUNdown

6	Clear memory, and define variable SI.
20-91	Display title screen and play suitable title music!
130-195	Ask if you want instructions. If there is no reply after a certain time (when the variable V has reached 400) a beep will sound.
200-220	Define variables H, E, and M and reset T, A, and R.
300	Increase year count by I and add I to count of years since last election.
305-320	Display prompt screen for allocation inputs.
323	Clear keyboard buffer.
330-350	See if you're too old. If so, wait for key press the GOTO end screen.
370	Clear variables D, P, and C ready for new input of allocations.
377	If instructions have been called for, set flag to ensure return to program then GOSUB to instructions.
410	Work out what family allocation is.
430	If 4 or 5 years up call election.
440	If random chance occurs call emergency early election.
500-580	Recalculate values after new allocation.
590	GOSUB to display latest popularity test.
600-799	In each separate present event possibility line (600-605, 640-650, 720, 754, 760, and 792) a random number is compared to your allocation. If the random number is higher, the event occurs. Most events can be identified by the print statements they contain.
800-850	Select if random event should occur.
860-1140	Three random events, including promotion.
1200-1250	Check to see if H, E, or M has gone over the limit. If so, correct it.
1300-1380	Display latest popularity test, giving voter, M.P. and morale ratings.

1400-1484	Display rank calculated from variable R after promotion. Only on one occasion does this routine occur when not after promotion. This is when AI=1, then this routine is being used after the end of a game. The GOSUB 4000 in line 1450 uses a special sound routine to celebrate.
1500-1528	An election has been called. You are asked if you wish to stand, if so an opinion poll (which is normally inaccurate!) is displayed.
1540-1555	The variables Q1-Q8 are defined. This is done here so that if a recount is needed the votes for each party will not be dramatically different.
1560-1740	The results of the election are displayed. The result is calculated, you are offered a recount if you lost or congratulated if you won. It should be noted that the variables Q1, Q2, and Q8 are incremented by a random number. This gives a recount a chance to change the result if it is very close.
1805-1999	Instructions. Line 1998 checks if the instructions are being displayed during a game (after entering '999').
2000-2060	End screen. Your previous best rating and the year is displayed, as well as your latest rating. You are then offered a new game. If this is not required an end screen is displayed.
3000-3134	Random event.
3500-3600	This routine displays the dot, dot, dots just before an election.
4000-4080	This is the celebration routine for after an election or when you become Prime Minister.
5000-5100	Opinion poll is displayed. The variable A is worked out to be used in the election variables.
7000-7999	Random happening.
8000-8030	Timing loop, the length of loop increases every time until the variable W is reset.
9000	The 'Hit any key' routine. Line 9005 clears keyboard buffer to ensure a key has to be pressed after the 'Hit any key' message is displayed.


```

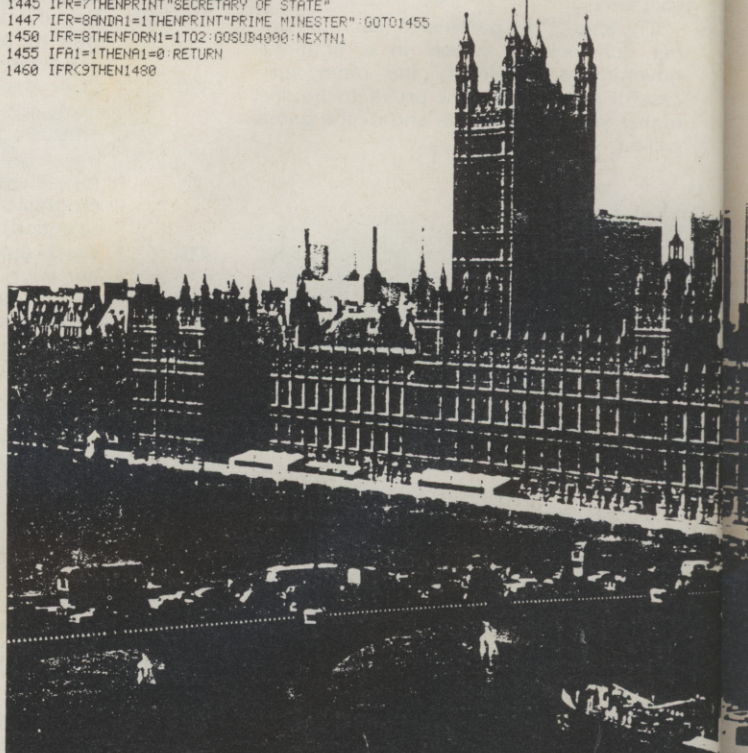
1 REM *****
2 REM * (C) S.KNIGHT *
3 REM * COMPLETED ON *
4 REM * 4TH MARCH 83 *
5 REM *****
6 CLR S1=36874:POKES1+5,29
20 PRINT "*****WESTMINSTER*****"
30 PRINT " "
40 PRINT " "
50 PRINT " "
60 PRINT " "
70 PRINT " "
72 PRINT " "
73 PRINT " "
74 POKES1+4,15:FORL=1T04:POKES1+1,180:FORM=1T050:NEXTM:POKES1+1,0:FORM=1T0800:NE
NTM
90 POKES1,180:FORM=1T050:NEXTM:POKES1,0:FORM=1T0800:NEXTM,L
90 FORX=1T03:POKES1,170:FORV=15T00STEP-1:POKES1+4,V:PORT=1T0170:NEXTT,Y:FORV=1T0
600
91 NEXTV,X
130 POKES1,0:POKES1+4,15:PRINT "DO YOU KNOW THE RULES?"
185 POKES198,0
190 GETAF:IFAF="N"THEN1800
191 V=V+1:IFV<400THEN195
192 POKES1+5,57:POKES1+2,190:FORX=1T01000:NEXTX:POKES1+2,0:V=0:POKES1+5,29
195 IFAF<>"Y"THEN190
199 REM INITIALISE****
200 H=45+INT(RND(0)*21):E=45+INT(RND(0)*31)
210 M=50+INT(RND(0)*21)
220 T=0:A=0:R=1
299 REM MAIN LOOP*****
300 T=T+1:A=A+1
305 POKES1+5,27
307 POKES1+2,230:FORX=1T0100:NEXTX:POKES1+2,0
310 PRINT "*****WESTMINSTER*****"
313 PRINT "999" FIRST FOR HELP"
320 PRINT "***** YEAR "T
323 POKES198,0
330 IF T<40+INT(RND(0)*(6+R))THEN370
340 PRINT "WELL DONE SENILE-YOUR CONSTITUENCY PARTY HAS 'ENCOURAGED' YOU TO RET
IRE."
343 GOSUB9000
350 GOTO2000
360 PRINT "TOTAL MUST BE <17"
370 D=0:P=0:C=0
371 PRINT "ENTER DUTIES IN TURN"
375 INPUT "MINISTERIAL "D
377 IF D=999THENM1=1:GOSUB1800:GOTO305
380 INPUT "CONSTITUENCY "C
390 INPUT "PARLIAMENTARY "P
400 IF D+P+C>17THEN360
410 F=17-D-P-C
420 PRINT "FAMILY IS "F:PRINT FORM=1T01000:NEXTX:POKES1+5,29
430 IFA=50RA=4+INT(RND(0)*2)THEN1500
440 IFA<0:INT(RND(0)*30)THEN500
450 PRINT "***** CRISIS !!!"
452 PRINT "NEARLY ELECTION FORCED" FORM=1T01500:NEXTX:GOTO1510
499 REM CALCULATIONS**
500 H=H*((D-5)+(P-5)*2)/50+H-1
510 IF D=100THENH=100-INT(RND(0)*15)
520 IF C=100THENH=INT(RND(0)*6)
530 E=E*((C-5)*3+(D-5)+(P-5)+(M-50)/5)/150+E-A+C-1
540 IF E=100THENH=99-INT(RND(0)*10)
550 IF C=100THENH=INT(RND(0)*3)
560 M=M*((F-5)*3+(E-40)/10+(H-50)/10)/100+M-A
570 IF D=100THENH=100-INT(RND(0)*5)
580 IF C=100THENH=INT(RND(0)*15)
590 GOSUB1300:PRINT "J"
599 REM PRESENT EVENTS
600 IF D=INT(RND(0)*4)THEN640
605 IF D=40THEN640
610 PRINT "PARLIAMENT IS WORRIED ABOUT MINISTERIAL WORK"
620 PRINT "A PUBLIC INQUIRY HAS BEEN SET UP TO CHECK ON YOUR PERFORMANCE"
623 D=0:IF M<SANDH<25ANDRND(0)<.5THEN0=1
625 IF 0=1THENPRINT "THE REPORT IS SO BAD YOU RESIGN" GOSUB9000:GOTO2000
628 PRINT "THE REPORT IS OK"
630 E=E*14/15:M=M*12/13:H=H*8/9
635 GOSUB9000
638 PRINT "J"
640 IF C=INT(RND(0)*3)THEN720
650 IF E=40THEN720
652 PRINT "YOUR LOCAL PARTY ARE ANNOYED WITH YOU"
660 PRINT "THEY STAGE A VOTE OF NO CONFIDENCE."
665 GOSUB9000
670 J=INT(31-E/3-C+INT(RND(0)*3))
672 IF J<1THENJ=INT(RND(0)*3)
673 IF J=31THENJ=31
680 PRINT "***** VOTES ARE COMING IN"
682 PRINT "FOR":GOSUB3500:PRINT31-J:PRINT
690 FORX=0T02000:NEXT
700 PRINT "AGAINST":GOSUB3500:PRINTJ:"X"
705 E=E*((J*5)/30)*5:E=INT(E)
710 M=M*(J+30)/60
713 FORX=1T01000:NEXTX:IF J<(36-J)THEN720
715 FORX=250T0120STEP-1:POKES1+2,X:NEXTX:POKES1+2,0
717 PRINT "YOU ARE HEAVILY VOTED OUT SO RESIGN." GOSUB9000
719 GOTO2000
720 IF P=INT(RND(0)*4)THEN754
725 PRINT "***** MAJOR SCANDAL OVER GOV DISORGANISATION *****"
740 M=M*10/11:H=H*15/16:E=E*12/13
750 GOSUB9000
754 IF F=INT(RND(0)*4)THEN760
755 PRINT "DAUGHTER ARRESTED IN DRUGS SCANDAL. FINED £5,000."
756 PRINT "MUCH BAD PUBLICITY AND FAMILY STRAIN OCCURS"
757 E=E*14/15-INT(RND(0)*5):H=H-INT(RND(0)*4/3):M=M*11/12-INT(RND(0)*3)
758 GOSUB9000
760 IF F+1>INT(RND(0)*4)THEN792
770 PRINT "***** FAMILY CRISIS LEAKED TO THE MEDIA."
780 PRINT "BAD PUBLICITY OCCURS."
790 M=M*3/5:E=E*12/13:H=H-INT(RND(0)*7/3)
791 GOSUB9000
792 IF F=INT(RND(0)*3)THEN800
793 PRINT "***** YOU MAKE A MISTAKE ON YOUR TAX FORM"
794 PRINT "BIG STORY IN A DAILY TABLOID. AWFUL PUBLICITY OCCURS"
795 M=M*(10/11)
796 E=E*(12/13)
797 H=H*(25/26)
798 GOSUB9000
799 REM RANDOM EVENTS**

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800 J=INT(RND(0)*10):IF J=0THEN900
807 IF J=8THENGOSUB3000
810 IF J=1ANDH<10THEN950
820 IF J=5ANDH<15THEN1000
830 IF J=6THEN1058
840 IF J=7THEN1058
850 PRINT "***** NOTHING ELSE HAPPENED THIS YEAR *****"
855 GOSUB9000
860 GOTO1200
900 PRINT "FAMINE IN THE FAR EAST"
910 PRINT "DO YOU SEND AID?" POKES198,0
920 GETAF:IFAF="Y"THEN940
925 IFAF<>"N"THEN920
930 E=E*((30-INT(RND(0)*11))/25):M=M*10/9:GOTO1200
940 E=E*((30-INT(RND(0)*21))/25):H=H*13/12:GOTO1200
950 PRINT "FOREIGN REFUGEE CRISIS"
960 PRINT "WILL YOU ACCEPT ANY OF THE IMMIGRANTS?" POKES198,0
970 GETAF:IFAF="Y"THEN990
975 IFAF<>"N"THEN970
980 E=E*((30-INT(RND(0)*11))/25):M=M*10/9:GOTO1200
990 E=E*((30-INT(RND(0)*21))/25):H=H*13/12:GOTO1200
1000 PRINT "TIME FOR M.P. PAY RISE" J=INT(RND(0)*8)
1020 PRINT "M.P.'S WOULD LIKE",J*5+20,"%"
1030 PRINT "VOTERS WANT",J*3+5,"%"
1040 INPUT "WHAT DO YOU SUGGEST?" X=E-(X-(J*3+5)*2)
1050 M=M-(J*4)+X:H=H-(J*4+6)+X:GOTO1200
1055 J=AND(0):IF J<.5THEN1070
1060 PRINT "YOUR SUPERIOR BECOMES ILL" GOTO1080
1070 PRINT "YOUR SUPERIOR DECIDES TO RETIRE"
1080 PRINT "WILL YOU TAKE OVER HIS PLACE?...X" GOSUB9000
1100 IF (H/1.15)+(M/5)+(T*4)*5>INT(RND(0)*80+40)THEN1120
1110 PRINT "YOU STAY WHERE YOU ARE"
1115 POKES1+4,15:FORX=250T0130STEP-1:POKES1+3,X:NEXTX:POKES1+3,0:GOTO1400
1120 PRINT "YOU SUCCEED AND RISE IN RANK" R=R+1
1130 POKES1+4,15:FORX=130T0250:POKES1+1,X:POKES1+2,X:NEXTX:POKES1+1,0:POKES1+2,0
1140 GOTO1400
1199 REM END OF LOOP**
1200 IF D=100THENH=100-INT(RND(0)*15)
1210 IF C=100THENH=INT(RND(0)*6)
1220 IF E=100THENH=99-INT(RND(0)*14)
1230 IF C=100THENH=INT(RND(0)*3)
1240 IF D=100THENH=99-INT(RND(0)*5)
1250 IF C=100THENH=INT(RND(0)*10+2)
1260 GOSUB1300:GOTO300
1300 POKES1+4,15:POKES1+5,29:POKES1+2,170:FORM=1T050:NEXTX:POKES1+2,0
1303 PRINT "***** LATEST POPULARITY TESTS"
1305 E=INT(E):H=INT(H):M=INT(M)
1310 PRINT "VOTER SUPPORT",E,"%"
1320 PRINT "M.P. SUPPORT",H,"%"
1330 PRINT "YOUR OWN MORALE RATING IS",M,"%"
1340 IF D=INT(RND(0)*25)THEN1370
1350 PRINT "URGH! YOU DECIDE TO RESIGN FOR PERSONAL REASONS."
1355 GOSUB9000
1360 GOTO2000
1370 GOSUB9000
1380 POKES1+5,29:RETURN
1399 REM RANK*****
1400 PRINT "YOUR RANK NOW IS: X"
1403 IFR=0THENPRINT "DEFEATED CANDIDATE"
1404 IFR=1THENPRINT "BACKBENCHER"
1405 IFR=2THENPRINT "PARLIAMENTARY PRIVATE SECRETARY"
1410 IFR=3THENPRINT "PARLIAMENTARY PERSONAL SECRETARY"
1420 IFR=4THENPRINT "JUNIOR MINISTER"
1430 IFR=5THENPRINT "CABINET MINISTER"
1440 IFR=6THENPRINT "MINISTER FOR DEFENCE"
1445 IFR=7THENPRINT "SECRETARY OF STATE"
1447 IFR=8ANDR1=1THENPRINT "PRIME MINISTER" GOTO1455
1450 IFR=8THENFORN1=1T02:GOSUB4000:NEXTN1
1455 IFR1=1THENR1=0:RETURN
1460 IFR<9THEN1480

```



1830 PRINT "WHO DO THIS YOU DECIDE HOW MUCH TIME TO SPEND?"

1840 PRINT "■ 1 MINISTERIAL."

1850 PRINT "■ 2 CONSTITUENCY."

1860 PRINT "■ 3 PARLIAMENTARY."

1870 PRINT "■ 4 FAMILY"

1880 PRINT "■ YOU HAVE 17 POINTS TO SHARE BETWEEN THESE." "

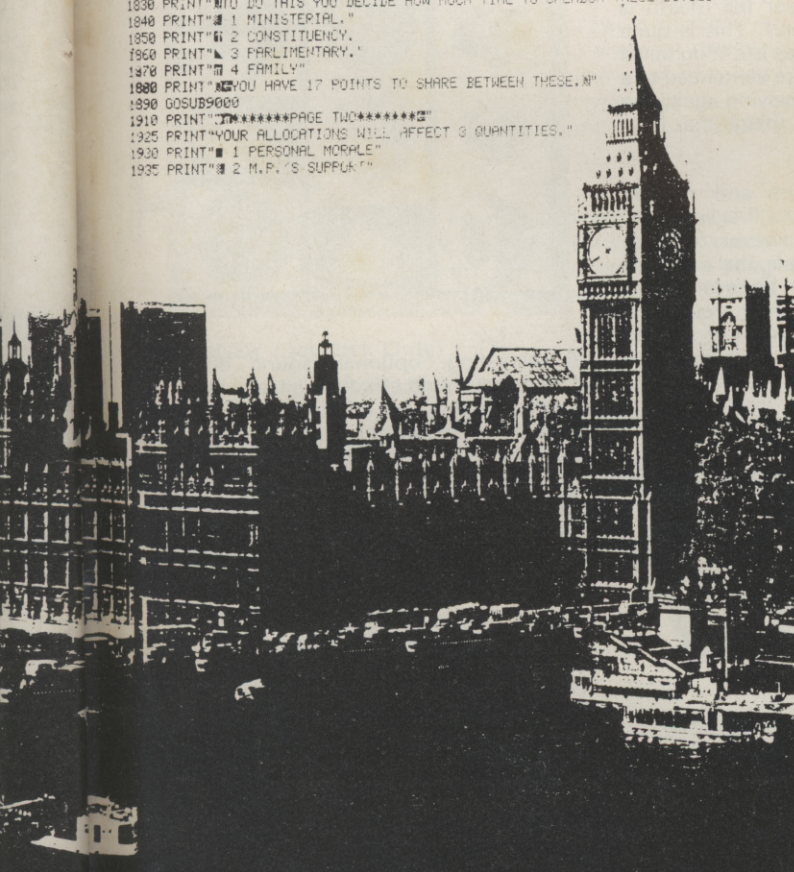
1890 GOSUB 5000

1910 PRINT "*****PAGE TWO*****"

1925 PRINT "YOUR ALLOCATIONS WILL AFFECT 3 QUANTITIES."

1930 PRINT "■ 1 PERSONAL MORALE"

1935 PRINT "■ 2 M.P.'S SUPPLY"

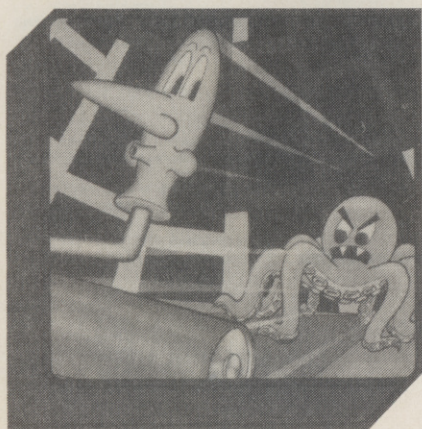


```

0005 *****
0005 FORX=150TO255:POKES1+1,X:POKES1+2,X:FORM1=1TO40:NEXTX
0010 FORX=0TO2:POKES1+X,0:NEXTX:RETURN
0015 POKES1+3,0:RETURN
0020 REM OPINION POLL*
0025 POKES1+5,29
0030 PRINT"OPINION POLL FOR THE CONSTITUENCY OF TALE."
0035 PRINT"CARRIED OUT BY MR.A."
0040 A=20000-(E*250):INT(RND(0)*400)-(R14)+INT(RND(0)*2000-500)
0045 IFAC1000THENA=1000+INT(RND(0)*500)
0050 IFAC2000THENA=20000+INT(RND(0)*500)
0055 PRINT"THE LATEST POLLS SHOW:"
0060 PRINT"LOYALISTS":V1=INT((A/2+INT(RND(0)*500))/45000*100):PRINTV1
0065 PRINT"REFORMISTS":V2=INT((A/2+RND(0)*(A/2))/45000*100):PRINTV2
0070 PRINT"NEW I.C.(YOU)":V3=INT((27000-A)/45000*100):PRINTV3
0075 PRINT"OTHERS":V4=INT((RND(0)*3000+5000)/45000*100):PRINTV4
0080 PRINT"ANDON T KNOWS",100-V1-V2-V3-V4,"%"
0085 GOSUB9000
0090 POKES1+5,24:RETURN
0095 X=RND(0):U=0
0100 IFX.7THENRETURN
0105 PRINT"MAJOR STRIKE THREAT"
0110 J=INT(RND(0)*100)
0115 PRINT"WHETHER IS A":"J":"%"
0120 PRINT"CHANCE OF SETTLEMENT"
0125 PRINT"DO YOU WISH TO BECOME INVOLVED?"
0130 GETA:IFA="Y"THEN7000
0135 IFA="N"THENU=2:GOTO7300
0140 GOTO7070
0145 PRINT"YOU HAVE NOW PUBLICLY INVOLVED YOURSELF."
0150 U=1:GOTO7500
0155 PRINT"YOU HAVE NOW PUBLICLY DENIED ALL INVOLVMENT":U=2
0160 PRINT"YOU MAY BE DAMAGED BY THIS"
0165 E=E-(J/5)+INT(RND(0)*5):M=M-(J/10):H=M-(J/10)
0170 X=INT(RND(0)*40+J)
0175 PRINT"NEGOTIATIONS GOING ON"
0180 GOSUB9000
0185 IFX.70THENGOTO7700
0190 PRINT"NEGOTIATIONS FAILED LONG STRIKE OCCURED"
0195 IFU=2THENPRINT"YOU ARE NOT DAMAGED ANY MORE."GOTO7740
0200 PRINT"YOU ARE DAMAGED"
0205 M=M-5:E=E-(100-J/5)
0210 GOTO7740
0215 PRINT"STRIKE CALLED OFF"
0220 IFU=2THENPRINT"YOU ARE NOT INVOLVED SO GAIN NOTHING"GO7740
0225 PRINT"YOU GAIN AS INVOLVED"
0230 M=M+INT(RND(0)*3+5):E=E+INT(RND(0)*(J/10)+7)
0235 GOSUB9000
0240 RETURN
0245 REM DELAY LOOP
0250 M=200:IFU=2500THENM=2500
0255 FORX=1TO2:NEXTX:PRINT
0260 POKES1+2,228:FORX=1TO30:NEXTX:POKES1+2,0

```


MACHINE CODE ARCADE GAMES ON THE BBC MICRO



By Jeremy Ruston, 4 Hornton Place, London W8

This series is designed to help those who wish to start writing commercial type arcade games. The first point to make is that as soon as you enter the market place, you are in competition with games like the Hobbit, Planetoid, Rocket Raider, Zany Kong and many other quality games.

A competitive game has to be written in assembly language. A more limiting factor is that it is extremely difficult to write a game without a disc drive, but is possible to do so without one. This is because the BBC Micro's memory is not large enough to hold a MODE 2 screen, the game object code and the game source code.

Assuming you have a disc drive, the source code of the game should be written in one or more normal BASIC programs. Choose a value of PAGE that leaves enough space above OSHWM for the object code, and then CHAIN the source code files. The assembly will have to be carried out in MODE 7. Finally, use OSCLI to save the object code before attempting to run it. Please note that the author owns a BBC Micro but the series will in future be more generally aimed at other micros. If the above paragraph did not make sense to you, you are not ready to embark on such an ambitious project. You should write a few less ambitious assembly language programs first, in order to gain experience.

Game Considerations

The above details are secondary to the considerations of the game itself. The game you write should be carefully chosen. You should bear in mind that the public will not fall for Pacman, Defender, Donkey Kong or Missile Command again. Equally, don't think you can sweep the

market with a game embodying the best features of all the above games — punters will see through it, and realise they have already bought your game in the guise of the other four.

Nowadays, it isn't even enough to think of an amusing scenario and then simply incorporate a few moving shapes into it.

In a nutshell, your game must have:

1 A clearly defined aim. For example, the aim in Pacman is simply to eat everything in sight, in Defender to blow up almost everything in sight and in Zany Kong you must rescue the girl at the top of the girder. It is easy to make the mistake of making the aim of the game too unbelievable. For example, trying to rescue a damsel in distress whilst eating everything in sight and blowing up everything else would make a rather complex and silly game.

2 Some form of retribution must be incorporated should the player fail (death is almost universally popular). This is quite important, since messages like 'You failed in your mission, and so are sentenced to a five second wait before playing again' are puerile. The more awful things that happen, the better!

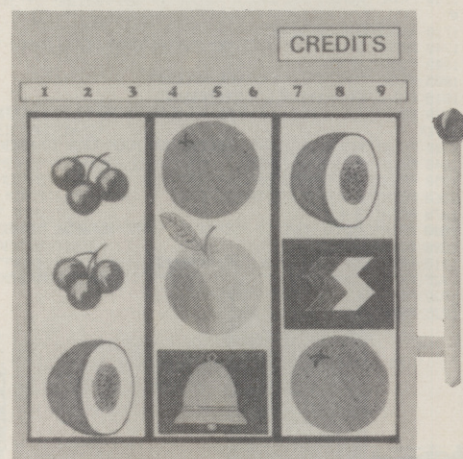
3 Lots of pretty colours and moving shapes. The colours are the first line of attraction at exhibitions. However, don't go over the top. For example the excellent BBC version of Snake Pit, has a large purple and yellow flashing border around the screen for the entire game, not serving any useful purpose except terminally annoying at least one player.



4 Well designed backgrounds and shapes. The graphics design of a game is the aspect that makes you stop in WH Smiths and say 'Wow!', just prior to handing over your cash for the game. Try to make the backgrounds irregular. For example a jagged mountainside as a background looks far more impressive than a series of blocks. Try to make the

background look as if it was hand drawn, rather than computer generated. This seems to be because punters are attached towards the unusual. The more realistic the graphics, the more fun it is to play.

5 Simple controls. If at all possible, make it possible to change the keys used and save a version of the game with the different keys. Joystick control should be optional. Try to make the controls consistent — for example the Acornsoft Missile Base game requires you to press 'space' to go from the first instruction page to the second, but 'return' to go from the second instruction page to the main game — which shows utter idiocy.



6 Interesting, optional, sound effects. Designing sound effects is a task I find incredibly boring, but it is impossible to discount their importance. Try to make the sound effects linked to the game action. For example, the BBC version of Snake Pit asks if sound effects are required, and if they are, simply repeats a channel zero envelope which sounds vaguely like a slithering snake.

Once you have designed the game, go somewhere where you cannot touch the computer to plan the game. This stage should consist of carefully thinking out the way the game operates and how some events trigger off others etc. You needn't write anything down at this stage, but you may find it a help to do so.

Then you are ready to code the game, which will be covered by future articles in this series.

Next month find out the more technical aspects of programming in Machine Code — especially for games programs.

Mr. CHIP SOFTWARE

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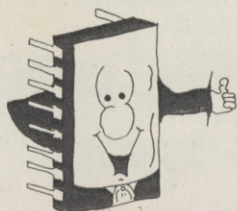
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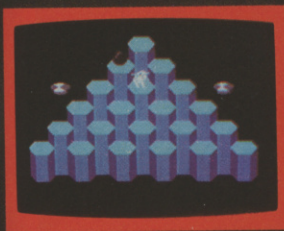
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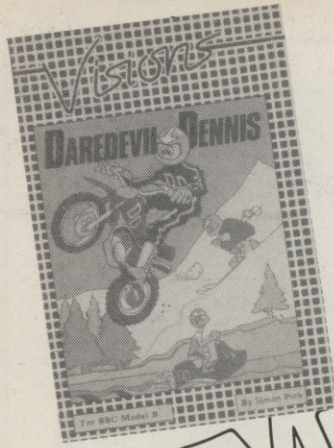
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COMpetition 1 COMpetition 2

Visions of your own program professionally sold

Loads of competitions will appear in each issue of *Games Computing* and to kick off we've got a great one for you to try your hand at.

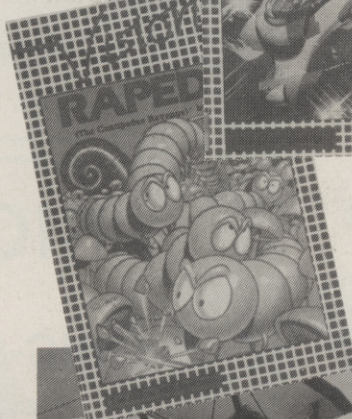
What to do

Visions Software Factory, a company fairly new to the business, is always on the lookout for original programs to market commercially. Already they have a string of successful titles under their belt including gems like *Pitman Seven*, *Snooker* and *Sheer Panic*. Most of their games are converted to run on best selling micros like the Spectrum, BBC, VIC 20, Dragon and Commodore 64.

What **Visions** would like you, the people who really know what's what in games software, to do is to create an idea for a computer game, be it an arcade game, an adventure game or any other type of game that springs to your minds. How about *that* for an easy task? You don't even have to over tax your brain by actually writing the program!

Original Thinking

If you can think up a good idea for a computer game all you need to do to win this competition is write down your game idea (preferably type written) on a sheet of paper and send it to us. Include as much of the game's details as you can, like diagrams of how you see the characters in your game, and the screen layout that you would like to see, the points scoring system and the various phases which you would like to incorporate into the game. REMEMBER that the game you submit to our competition *must* be original and not a copy of an existing game that you have seen. Also, presentation of your game idea will be taken into account when judging so do your best to submit your entry as neatly as possible.



What You Win

The winning idea will be judged by the directors of **Visions** (Sean de Bray, Martin Parmiter, Roz Evitts and Jon Burnham) will subsequently be worked upon by the firm's expert programmers who will transform the game into one which will, hopefully, be a best seller. What *you* get out of it are the standard royalties paid by **Visions** to their programmers. This is 12% of the sale of each game. You'll also receive a great **Visions** T-shirt featuring a flashing fluorescent pink **Visions** logo on the front with a *Games Computing* logo on the back — so you'll certainly cut a dash in arcade halls and computer clubs and be the envy of your friends!

Runners up (five in all) will each receive a range of **Visions** software for the computer of their choice (so does the winner), and a **Visions**/*Games Computing* T-shirt of the non-flashing variety.

So all you would-be programmers out there put your thinking cap on and let your imagination run riot.

Competition Rules

1. This competition is open to all UK and Northern Ireland readers of *Games Computing*, except employees of Argus Specialist Publications Ltd, their printers and distributors, employees of Visions Software Factory or anyone else connected with the competition.
2. As long as the correct coupon is used for each entry, there is no limit to the number of entries per person, but photocopies of it won't be accepted.
3. All entries must be postmarked before January 31, 1984.
4. The prize will be awarded by Visions' judges.
5. No correspondence will be entered into with regard to the results of the competition and it is a condition of entry that the Editor's decision is accepted as final.
6. The winner will be notified by post and the results will be published in a future issue of *Games Computing*.

Address to: VISIONS/GAMES COMPUTING SOFTWARE COMPETITION

Game type.....

Game name.....

Your name (Christian and surname).....

Age..... Tel. No.....

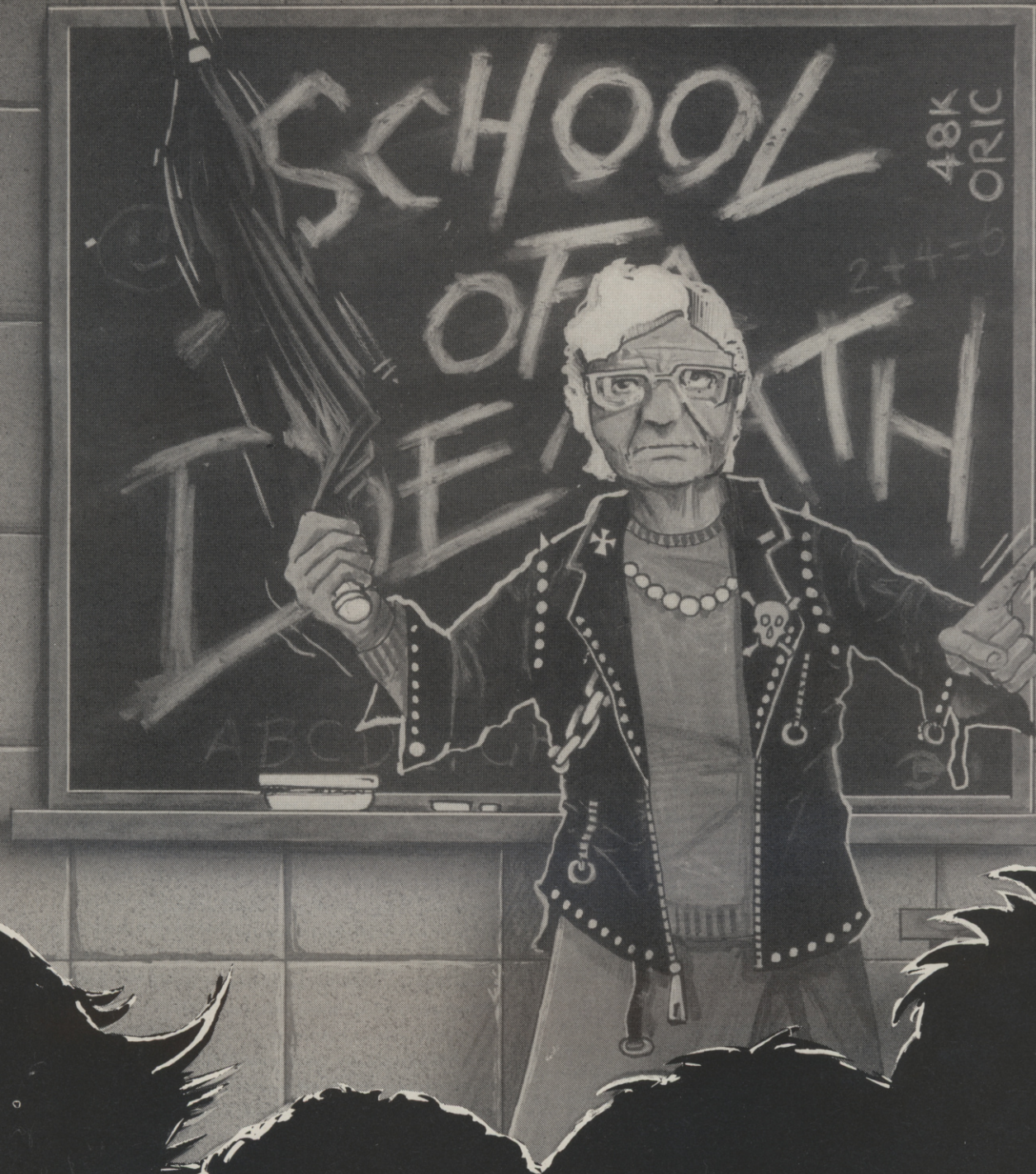
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IF YOU DON'T SEND THIS FORM WITH YOUR ENTRY YOU WILL BE DISQUALIFIED FROM THE COMPETITION.





By S. W. Lucas

Hello there. My name is Fred and I have been sent to my younger brother's school just before the caretaker is locking up to go home for the night. My mother has given me strict instructions to find the hidden five valuable items, take them to the car park and call her to come and collect them.

There are many dangers to be faced in the school and the task will not be easy.

Words Understood

E, W, N, S, CLIMB, JUMP, DOWN, SWIM, GET, TAKE, GRAB, USE, INSERT, SCORE, THROW, EXAMINE, INVENTORY, HELP, PRAY, DROP, LEAVE, QUIT, LOOK, PUSH, SHOOT, ATTACK, KILL, HIT, WAR, GIVE, BUY, READ, EAT, LOAD, CLOAD, SEARCH, KISS, SWEARING. Any of these words can be used to instruct the program and operate the game throughout.

Conversion Clues

Most of the program uses fairly standard BASIC. It should be possible to convert the program fairly easily to run on most machines:

PAPER and INK only change the colour of the display and may be left out altogether. ZAP, PING, SHOOT and EXPLODE produce predefined sounds and may be replaced by almost any short sound effects (or left out altogether).

WAIT could be replaced with a For/Next loop to introduce a short time delay.

REPEAT/UNTIL can easily be replaced by a FOR/NEXT loop.

RUNdown

Line	Effect
40	Calls the TITLES subroutine.

60	Sets pointer for variables.
70-80	Calls subroutine to read locations, treasures and words understood into appropriate arrays.
100-160	Displays current location.
180	Displays where you can go.
250	Calls for input.
260-470	Acts upon inputted command and returns to display at line 100.

Variables Used

Integer variables are used to save memory space.

P% = current location.

X\$(X) = messages.

V\$(X) = what you are carrying.

S%(X,Y) = where you can go from each location.

AN = FRE(" ") in line 102 is a garbage collection routine not necessary in some versions of BASIC.

Z% = start location.


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1 REM ++ AN ADVENTURE GAME WRITTEN FOR THE 48 K ORIC 1
2 REM ++ BY S.W. LUCAS 1983

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--
10 TEXT:PAPER2:INK0
20 C%=0:Y%=0:X%=0:J%=0:K%=0:P%=2:M%=0:Z%=2
30 DIMQ$(53),G$(53),S$(53,4),V$(3),B$(60,1),N$(69),NZ$(69),X$(61)
40 GOSUB2720
60 RESTORE
70 GOSUB490
75 GOSUB2290
80 CLS
100 PRINT:PRINT:PRINT"I AM":PRINTQ$(P%):A$=""
101 PRINTCHR$(B)
102 AN=FRE("")
110 IFS$(P%,1)>0THENA$="NORTH"
120 GOSUB2770
130 IFS$(P%,2)>0ANDLEN(A$)>0THENA$=A$+", SOUTH"
131 IFS$(P%,2)>0ANDLEN(A$)=0THENA$="SOUTH"
140 IFS$(P%,3)>0ANDLEN(A$)>0THENA$=A$+", EAST"
141 IFS$(P%,3)>0ANDLEN(A$)=0THENA$="EAST"
150 IFS$(P%,4)>0ANDLEN(A$)>0THENA$=A$+", WEST"
151 IFS$(P%,4)>0ANDLEN(A$)=0THENA$="WEST"
160 IFS$(P%,1)=0ANDS$(P%,2)=0ANDS$(P%,3)=0ANDS$(P%,4)=0THENA$="NOWH
ERE AT ALL"
161 IFB%=1THENA$="DOWN":S$(P%,1)=0:S$(P%,2)=0:S$(P%,3)=0:S$(P%,4)=0
180 PRINT" I CAN GO :-":PRINTA$
200 E=0:FORT=1T051:PP%=0:IFB$(T,1)=P%THENPP%=1
210 IFPP%=1THEN230
220 NEXT:GOTO250
230 IFE=0THENPRINT:PRINT"THAT LOOKS LIKE"
240 PRINTG$(T):E=E+1:GOTO220
250 PRINT:INPUT"WHAT SHOULD I DO NOW":Z$
260 B$=LEFT$(Z$,1)
261 C$=LEFT$(Z$,3)
270 CLS:IF LEFT$(Z$,2)="GO"THENPRINT"JUST USE THE FIRST LETTER":GOT
O100
271 PRINT:PRINT:PRINT"HOLD ON A SEC!":PRINT:PRINT
280 IFB$="N"ANDS$(P%,1)<>0THENP%=S$(P%,1):GOTO100
320 IFB$="W"ANDS$(P%,4)<>0THENP%=S$(P%,4):GOTO100
330 B$=LEFT$(Z$,2)
340 IFB$="S"ANDMID$(Z$,2,1)<>"H"ANDS$(P%,2)<>0THENP%=S$(P%,2):GOTO1
00
350 IFB$="SC"THENGOSUB2770:PRINT"YOU HAVE SCORED ":A$: " OUT OF 6":G
OTO100
360 IFB$="TH"THEN3040
370 IFC$="E"ANDS$(P%,3)<>0ANDMID$(B$,2,1)<>"X"THENP%=S$(P%,3):GOTO1
00
380 IFB$="GE"ORB$="TA"ORB$="GR"THEN1550
381 IFC$="CLI"THEN3550
385 IFB$="RE"THEN2940
390 IFB$="FU"ORB$="PI"THEN2840
391 IFC$="DOW"THEN3580
395 IFB$="HE"THEN2270
397 IFC$="SEA"THEN4100
400 IFB$="DR"ORB$="LE"ORC$="GIV"THEN1790
401 IFC$="PHO"THEN3900
405 IFB$="OU"THEN3610
410 IFC$="LOO"THEN10000
411 IFC$="KIS"THEN3930
415 IFB$="PR"THEN2890
416 IFC$="LOA"ORC$="CLO"THEN4000
420 IFB$="PU"THEN3010
421 IFC$="EAT"THEN3700

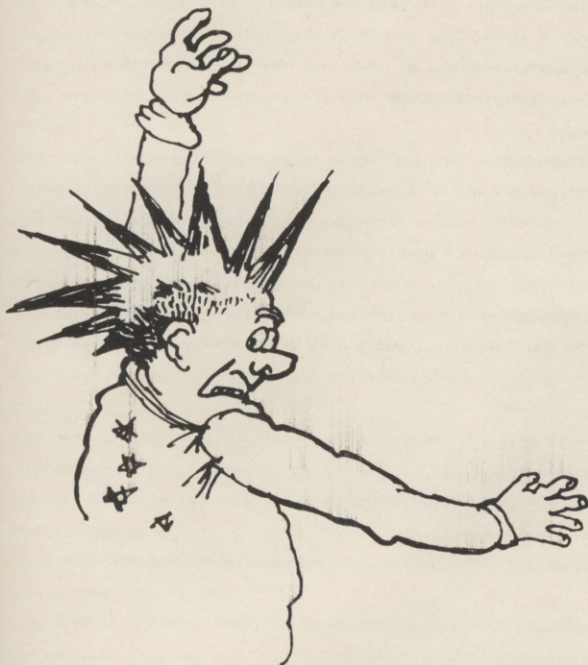
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425 IFB$="AT"ORB$="HI"ORB$="KI"THENZAP:GOTO1990
430 IFB$="EX"THEN2060
431 IFC$="SWI"THENCLS:ZAP:PRINT:PRINT:PRINT"SWIM? HERE ? What do yo
u think I am?":GOTO100
435 IFC$="USE"ORC$="INS"THEN2230
440 IFC$="WEA"THEN3060
445 IFC$="JUM"THEN3500
450 IFC$="INV"THEN2150
454 IFC$="BUY"THEN3800
460 K$=LEFT$(B$,1)
461 IFLEFT$(A$,3)<>"SOR"THENLL=1 ELSELL=0
465 IFB$<>"ANDLL=1ANDK$<>"S"ANDK$<>"N"ANDK$<>"E"ANDK$<>"W"THENPRIN
TX$(60)
470 GOTO100
480 END
490 FORH=1T051:FORD=1T04
500 READS$(H,D):NEXT
520 READO$(H):NEXT
530 FORH=1T051
540 READG$(H),B$(H,1):NEXT
550 FORH=1T069
560 READN$(H),NZ$(H)
565 NEXT
570 RETURN
580 DATA2,0,0,0,"IN A FISH AND CHIP SHOP"
590 DATA4,0,3,0,"ON THE PAVEMENT. THE SCHOOL IS NEARBY"
600 DATA0,0,5,2,"IN THE CAR PARK. IT IS FULL OF CARS"
610 DATA0,2,0,0,"IN THE SWEETSHOP"
620 DATA6,0,0,3,"BY THE SCHOOL'S MAIN ENTRANCE"
630 DATA11,5,13,7,"IN THE ENTRANCE HALL"
640 DATA8,0,6,0,"IN THE DINING HALL"
650 DATA0,7,0,42,"IN THE KITCHENS"
660 DATA0,0,10,0,"IN THE BOYS CHANGING ROOMS"
670 DATA43,11,17,9,"IN A GYMNASIUM"
680 DATA10,6,0,49,"IN A COVERED PASSAGEWAY"
690 DATA0,13,0,0,"IN THE DEPUTY HEAD'S OFFICE"
700 DATA12,15,14,6,"IN THE MAIN CORRIDOR"
710 DATA17,16,22,13,"IN THE MAIN CORRIDOR"
720 DATA13,0,16,0,"IN THE GENERAL OFFICE"
730 DATA14,28,0,15,"IN THE HEADMASTER'S OFFICE"
740 DATA18,14,0,10,"IN THE ASSEMBLY HALL"
750 DATA47,17,0,0,"ON THE STAGE"

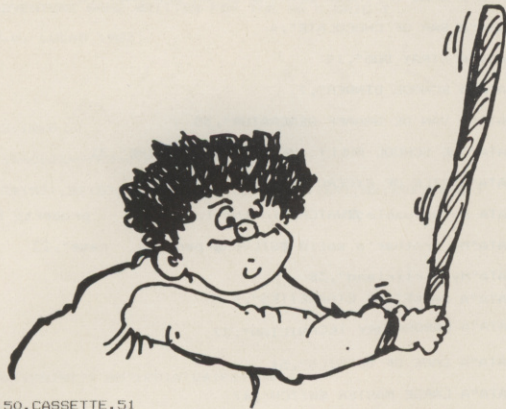
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760 DATA0,20,34,0,"IN THE PLAYGROUND"
 770 DATA19,22,23,21,"IN A CORRIDOR"
 780 DATA0,0,20,0,"IN A CLASSROOM"
 790 DATA20,24,32,14,"IN A CORRIDOR"
 800 DATA0,0,0,20,"IN A CLASSROOM"
 810 DATA22,0,25,0,"IN A CLASSROOM"
 820 DATA0,0,0,24,"IN THE MATHS STOCKROOM"
 830 DATA0,0,31,0,"IN THE MUSIC PRACTICE ROOM"
 840 DATA0,44,29,28,"IN THE SCHOOL LIBRARY"
 850 DATA0,0,27,16,"IN THE REFERENCE SECTION OF THE LIBRARY."
 860 DATA31,30,41,27,"IN A LONG CORRIDOR"
 870 DATA29,0,41,0,"AT THE DOOR OF THE STAFFROOM."
 880 DATA32,0,0,0,"IN A CORRIDOR"
 890 DATA33,31,48,22,"IN A CORRIDOR"
 900 DATA0,32,0,0,"IN THE GIRL'S TOILETS"
 910 DATA0,35,0,19,"IN THE COMPUTER ROOM"
 920 DATA34,37,0,51,"IN A PHYSICS LABORATORY"
 930 DATA0,0,0,37,"IN A CHEMISTRY STOCK ROOM"
 940 DATA35,38,0,0,"IN A PREP ROOM"
 950 DATA37,0,0,0,"In a quadrangle. It is so icy that I can't go South!"
 960 DATA38,0,0,0,"In the Common Room"
 970 DATA0,0,0,31,"IN THE BOYS TOILETS"
 980 DATA0,0,0,30,"IN THE STAFFROOM. THERE IS A TELEPHONE HERE."
 990 DATA0,0,8,0,"BY THE DUSTBINS"
 1000 DATA0,10,0,0,"IN THE GIRLS CHANGING ROOMS."
 1010 DATA27,0,0,0,"IN A LANGUAGE LABORATORY"
 1020 DATA0,19,0,46,"IN THE WORKSHOPS"
 1030 DATA0,0,45,0,"IN THE ART ROOM. IT IS FULL OF PAINTINGS."
 1031 DATA0,18,0,0,"IN A STAGE LIGHTING BOX"
 1032 DATA0,0,0,32,"IN A COOKERY ROOM"
 1033 DATA50,0,11,0,"IN THE CARETAKER'S ROOM"
 1034 DATA0,49,0,0,"IN THE BOILER ROOM"
 1035 DATA0,0,35,0,"IN A BIOLOGY LABORATORY"
 1040 RETURN
 1050 DATA"A TELEPHONE",41
 1060 DATA"SOME HISTORY HOMEWORK",21
 1070 DATA"A DRESS",43
 1080 DATA"A PAIR OF HEADPHONES",44
 1090 DATA"A PIECE OF MUSIC",26

1100 DATA"A GANG OF THUGS BEATING UP AN OLD LADY",2
 1110 DATA"A BAR OF CHOCOLATE",4
 1120 DATA"A STRAY DOG",19
 1130 DATA"A SCHOOL DINNER",7
 1140 DATA"A VAN DE GRAAFF GENERATOR",35
 1150 DATA"THE SCHOOL BULLY. HE DEMANDS A BRIBE",31
 1160 DATA"A FILE OF EXERCISE BOOKS",25
 1170 DATA My valuable ~~WATCH~~ in the lost property box",12
 1180 DATA"My brother's solid ~~SILVER~~ pencil case",23
 1190 DATA"My Girlfriend",38
 1200 DATA"A PACKET OF CIGARETTES",4
 1210 DATA"A LABORATORY TECHNICIAN",37
 1220 DATA"A CAGE OF GERBILS",51
 1230 DATA"A LARGE MASTER SWITCH",47
 1240 DATA"A PAINTING",46
 1250 DATA"A HAMMER",49
 1260 DATA"A BOTTLE OF HYDROCHLORIC ACID",36
 1270 DATA"A RAW EGG",48
 1280 DATA"A BAKING TRAY",48
 1290 DATA"A STEEL BAR",45
 1300 DATA"MY ~~ORIC~~ computer",39
 1310 DATA"A TOILET ROLL",40
 1320 DATA"A PAIR OF SHORTS",9
 1330 DATA"A ROPE",10
 1340 DATA"A WALL BAR",10
 1350 DATA"A BAR OF SOAP",33
 1360 DATA"SOME CHIPS",1
 1370 DATA"A £5 NOTE ON THE FLOOR",3
 1380 DATA"A CRICKET TROPHY",6
 1390 DATA"A JAR OF SODIUM CHLORIDE",36
 1400 DATA"A CANE",16
 1410 DATA"A REGISTER",15
 1411 DATA"A SCHOOL REPORT",12
 1412 DATA"AN IRATE TEACHER",23
 1413 DATA" MAGAZINE",27
 1414 DATA"AN ENCYCLOPEDIA",28
 1415 DATA"MY MATHS WORK",30
 1416 DATA"A CLOCK",14
 1417 DATA"A TABLE",18
 1418 DATA"A DESK",21
 1419 DATA"A PACKET OF CRISPS",4
 1420 DATA"A GOLD FOUNTAIN PEN",24
 1421 DATA"A FILE OF RUBBISH",42
 1422 DATA"A TAPE RECORDER",44
 1423 DATA"A MICROCOMPUTER",34
 1424 DATA"A CASSETTE TAPE",24
 1430 DATA TELEPHONE,1, HOMEWORK,2, HISTORY,2
 1435 DATA"DRESS",3, "HEADPHONES",4, "MUSIC",5, "PIECE",5
 1440 DATA THUGS,6, LADY,6, CHOCOLATE,7, BAR,7
 1445 DATA DOG,8, DINNER,9, GENERATOR,10, VAN DE GRAAFF,10
 1450 DATA BULLY,11, EXERCISE,12, WATCH,13, BOX,13
 1455 DATA PENCILCASE,14, SILVER,14, GIRLFRIEND,15
 1460 DATA CIGARETTES,16, PACKET,16, TECHNICIAN,17
 1465 DATA CAGE,18, GERBILS,18, SWITCH,19, PAINTING,20
 1470 DATA HAMMER,21, ACID,22, HYDROCHLORIC,22, BOTTLE,22
 1475 DATA EGG,23, BAKING,24, TRAY,24
 1480 DATA STEEL,25, BAR,25, ORIC,26, COMPUTER,26
 1485 DATA TOILET,27, ROLL,27, SHORTS,28, ROPE,29
 1490 DATA WALLBAR,30, SOAP,31, CHIPS,32, NOTE,33
 1495 DATA TROPHY,34, SALT,35, CANE,36, REGISTER,37
 1500 DATA REPORT,38, TEACHER,39, MAGAZINE,40, ENCYCLOPEDIA,41
 1505 DATA MATHS,42, CLOCK,43, TABLE,44, DESK,45, DRAW,45, CRISPS,46
 1510 DATA PEN,47, RUBBISH,48, RECORDER,49, TAPE RECORDER,49, MICROCOMPUTER,50



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1515 DATABC,50,CASSETTE,51
1550 GOSUB2640
1560 IFL%=1THEN1580
1570 GOTO250
1580 E%=0
1590 FORH=1TO51:IFB%(H,1)=P%ANDB%(N%(R),1)=P%THENE%=1
1600 NEXT
1610 IFE%=0THEN250
1620 CLS
1621 IFR=13THENAA=1
1622 IFP%=2ANDR=8ANDAD<>1THENPRINTX$(3):PING:GOTO100
1623 IFP%=2ANDR=9ANDAD<>1THENPRINTX$(4):EXPLODE:GOTO3600
1624 IFP%=4AND(R=10ORR=11ORR=23ORR=24ORR=62)THENPRINTX$(3):ZAP:GOTO
100
1625 IFR=47THENAC=1
1626 IFP%=19ANDR=12ANDAE<>1THENPRINTX$(6):SHOOT:WAIT10:GOTO100
1627 IFP%=19ANDR=12ANDAE=1THENPRINTX$(7)
1628 IFR=10ORR=11THENAB=1
1629 IFR=48THENAF=1
1630 IFP%=3ANDR=48THENG$(33)="A 5 NOTE"
1631 IFP%=41ANDR=1THENPRINT"VANDAL!!: I'LL HAVE NO PART IN SUCH A
CTION":GOTO100
1632 IFP%=31ANDR=16THENPRINT"WHAT DO YOU TAKE ME FOR? AN IDIOT?":ZA
P:GOTO100
1633 IFP%=6ANDR=49THENPRINT"YOU MIGHT BE A THIEF, BUT I'M NOT!":PIN
G:GOTO100
1634 IFP%=27ANDR=55THENPRINTX$(16):SHOOT:WAIT20:PRINTX$(17):SHOOT:P
%=16:GOTO100
1635 IFP%=36AND(R=31ORR=32ORR=33)THENGOTO3870
1636 IFP%=37ANDR=25THENPRINT:PRINT:PRINT"what do you think th
is is? a GAME?":PING:GOTO100
1637 IFP%=38ANDR=22ANDAG<>1THENPRINTX$(24):ZAP:G$(15)="" :GOTO100
1638 IFP%=34AND(R=67ORR=68)THENZAP:PRINT"I AM ARRESTED FOR STEALING
":GOTO3610
1639 IFP%=44AND(R=65ORR=66)THENAH=1
1640 IFP%=42ANDR=64ANDAI<>1THENPRINTX$(32):GOTO100
1641 IFP%=42ANDR=64THENPRINTX$(43):G$(48)="A KEY"
1642 IFP%=23AND(R=20ORR=21)ANDAJ<>1THENPRINTX$(33):ZAP:PAPER6:INK0:
GOTO100
1643 IFP%=23ANDR=54THENPRINT"Just how am I supposed to do that ?":G
OTO100
1644 IFP%=35AND(R=14ORR=15)THENPRINTX$(36):PRINTX$(37):ZAP:GOTO3610
1645 IFP%=21ANDR=60THENPRINT"I'm not stupid you know!":GOTO100
1646 IFP%=18ANDR=59THENPRINT"If you think I'm carrying that FORGET
IT":GOTO100
1647 IFP%=12ANDR=19THENPRINTX$(40):PING:GOTO100
1648 IFP%=12ANDR=18ANDAK<>1THENPRINTX$(41):PING:GOTO100
1649 IFP%=12ANDR=18THENG$(13)="My valuable WATCHE"
1650 IFP%=33ORP%=43THENPRINTX$(45):GOTO3610
1651 IFP%=47ANDR=28THENPRINT"IMPOSSIBLE":PING:GOTO100
1740 E%=0

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1750 FORD=1TO3:IFV$(D)=""THENV$(D)=G$(N%(R)):EZ=1:D=5
1760 NEXT
1770 IFE%=0THENPRINT"SORRY. MY HANDS ARE FULL !":PING:GOTO250
1780 B%(N%(R),1)=0:PING:GOTO100
1790 GOSUB2640
1800 IFL%=1THEN1820
1810 PRINT"I HAVEN'T GOT A ":L$:ZAP:INK1:PAPER7:GOTO250
1820 E%=0
1830 FORD=1TO3:IFV$(D)=G$(N%(R))THENV$(D)="" :EZ=1
1840 NEXT
1850 IFE%=1THEN1870
1860 PRINT"I DON'T HAVE IT . WHO'S A SILLY PERSONTHEN?":PING:GOTO10
0
1870 B%(N%(R),1)=P%
1880 CLS
1881 IFAA=1ANDR=13THENAA=0
1882 IFAB=1AND(R=10ORR=11)THENAB=0
1883 IFAC=1ANDR=47THENAC=0
1884 IFP%=2ANDR=12THENPRINTX$(5):G$(6)="A #GOLD# PENDANT":S$(2,2)=1
:AD=1
1885 IFP%=2ANDR=12THENN$(8)="GOLD":N$(9)="PENDANT":EXPLODE:GOTO100
1886 IFP%=19ANDR=62THENA=1:PRINTX$(7)
1887 IFAF=1ANDR=48THENAF=0
1888 IFP%=31AND(R=23ORR=24)THEN3860
1889 IFP%=37ANDR=30THENGOTO3910
1890 IFP%=38AND(R=10ORR=11)THENPRINTX$(27):G$(15)="A #PRESENT#":N$(
22)="PRESENT"
1891 IFP%=38AND(R=10ORR=11)THENAG=1:ZAP:PAPER5:INK4:PRINTX$(28):G$(
7)="" :GOTO100
1892 IFP%=38ANDR=50THENPRINTX$(29):S$(38,2)=39:0$(38)="In the quadr
angle"
1893 IFP%=38ANDR=50THENG$(35)="" :PING:GOTO100
1894 IF(R=66ORR=67)THENAH=0
1895 IFP%=34ANDAH=1AND(R=65ORR=66)THENAH=2
1896 IFP%=23ANDR=57THENPRINTX$(34):AJ=1:PING:G$(39)="" :GOTO100
1897 IFP%=23AND(R=53ORR=20ORR=3)ANDAJ<>1THENPRINTX$(35):ZAP
1898 IFR=34THENPRINTX$(42):G$(23)="" :EXPLODE:GOTO100
1980 GOTO100
1990 IFP%=2THENPRINT"I'm not doing that!":ZAP:GOTO100
1991 PRINT"ATTACK? you're joking":PING:GOTO100
2050 GOSUB2640
2070 IFP%=2ANDR=9THENPRINTX$(1):ZAP:GOTO250
2071 IFP%=2ANDR=8THENPRINTX$(2):GOTO250
2072 IFP%=37ANDR=25THENPRINTX$(20):PRINTX$(21):GOTO100
2073 IFP%=38ANDR=22ANDAG<>1THENPRINTX$(25):PING:GOTO100
2074 IFP%=34AND(R=67ORR=68)THENPRINTX$(30):GOTO100
2140 PRINT"I can't see anything special":GOTO100
2150 PRINT:PRINT:PRINT:PRINT"I HAVE:="
2160 F%=0
2170 FORH=1TO3:IFV$(H)<>""THENPRINTV$(H):F%=1
2180 NEXT
2190 IFE%=0THENPRINT"NOT A SAUSAGE!!":ZAP:GOTO250
2200 PAPER3:INK0:PING:GOTO250
2230 CLS:PING:PAPER6:INK0:GOSUB2640
2231 IFP%=23ANDR=64THENPRINTX$(38):GOTO100
2235 IFP%=12 ANDR=64THENPRINTX$(39):AK=1:GOTO100
2236 PRINT"I'm afraid I just don't understand you" ZAP:GOTO100
2270 CLS:PING:PAPER6:INK4:
2271 IFP%=2THENPRINT:PRINT:PRINT:PRINT"THEY MUST BE FRIGHTENED OF S
OMETHING!":PING:GOTO100
2272 IFP%=1THENPRINT:PRINT:PRINT:PRINT"THEY LOOK TASTY":PING:GOTO25
0
2273 IFP%=4THENPRINT:PRINT:PRINT:PRINT"CIGARETTES ARE BAD FOR THE H
EALTH!!!!":PING:GOTO100

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2274 IFP%=7THENPRINT:PRINT:PRINT:PRINT"COULD THAT BE A RED HERRING
FOR DINNER?":ZAP:GOTO100
2275 IFP%=16THENPRINT:PRINT:PRINT:PRINT"I'D WATCH IT IF I WERE YOU!
!":GOTO100
2276 IFP%=30THENPRINT:PRINT:PRINT:PRINT"TELEPHONES CAN BE USEFUL!":
GOTO250
2277 IFP%=47THENPRINT:PRINT:PRINT:PRINT"PULL THE SWITCH. I DARE YOU
!":ZAP:GOTO250
2278 IFP%=26THENPRINT:PRINT:PRINT:PRINT"IT'S TOO NOISY HERE !!!":EX
PLODE:GOTO100
2279 IFP%=34THENPRINT"WHAT DO YOU DO WITH A MICRO?":PING:GOTO100
2280 IFP%=19THENPRINT:PRINT:PRINT:PRINT"I'D FIND SOMETHING QUICKLY"
:GOTO100
2281 IFP%=33THENPRINT:PRINT:PRINT:PRINT"WHAT AM I DOING IN HERE?":G
OTO100
2282 IFP%=35THENPRINT:PRINT:PRINT:PRINT"WATCH IT!! THOSE THINGS ARE
DANGEROUS":EXPLODE:GOTO100
2283 IFP%=18THENPRINT:PRINT:PRINT:PRINT"DO YOU HAVE A SPEACH PREPAR
ED?":PING:GOTO250
2284 IFP%=27ORP%=28THENPRINT:PRINT:PRINT:PRINT"THERE MUST BE SOMETH
ING TO READ HERE!":GOTO100
2285 IFP%=36THENPRINT:PRINT:PRINT:PRINT"I DON'T KNOW ONE CHEMICAL F
ROM ANOTHER":GOTO100
2286 IFP%=52THENPRINT:PRINT:PRINT:PRINT"PHEW ! IT'S HOT HERE":PING:
GOTO100
2287 IFP%=53THENPRINT:PRINT:PRINT:PRINT"SOMETHING USEFUL HERE":PING
:GOTO100
2288 IFP%=45THENPRINT:PRINT:PRINT:PRINT"WHAT WOULD YOU DO WITH A ST
EEL BAR?:ZAP:GOTO100
2289 PRINT:PRINT:PRINT:PRINT"I'M NOT GOING TO SOLVE THIS FOR YOU
YOU KNOW !!!":ZAP:GOTO250
2290 REM READ COMMENTS
2300 X$(1)="THE LADY IS CRYING FOR HELP"
2310 X$(2)="THE THUGS LOOK NASTY. I WOULDN'T FANCY MY CHANCES"
2311 X$(3)="What do you take me for ? I'm not a shoplifter you kn
ow."
2312 X$(4)="AS I MOVE IN TO HELP, THEY ATTACK ME"
2313 X$(5)="THE THUGS TAKE FRIGHT. THE LADY DROPS SOMETHING AND RUN
S AWAY"
2314 X$(6)="THE DOG BARKS AND RUNS AWAY. I THINK IT THINKS THIS IS
A GAME!"
2315 X$(7)="IT WOLFS SOME OF THEM. IT IS HAPPY AND I THINK IT WILL
COME"
2316 X$(9)="THE ASSISTANT TAKES MY MONEY AND GIVES ME CHANGE"
2317 X$(8)="THE BULLY GRABS THEM AND RUSHES TO AN AREA BEHIND THE B
IKE SHEDS"
2318 X$(10)="O.K. MY MOTHER ANSWERS. SHE TELLS ME TO MEET HER IN T
HE CAR PARK"
2319 X$(11)="My mother answers. I get some earache about not findin
g treasures"
2320 X$(12)="IN THE CAR PARK. MY MOTHER HAS BROUGHT THE CAR TO COLLE
CT ME"
2321 X$(13)="I'M SPOILT FOR CHOICE HERE! I CAN'T DECIDE WHERE TO
START"
2322 X$(14)="The encyclopedia falls open at a page about making sal
t"
2323 X$(15)="I'm not sure if this is a clue?, but it's about E.T.
PHONE HOME"
2324 X$(16)="The librarian accuses me of stealing and takes me to
the head"
2325 X$(17)="He gives me a caning and then rushes away to answer t
he phone"
2326 X$(18)="AS I REACH FOR THE BOTTLE, IT FALLS TO THE FLOOR AND BR
EAKS."

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2327 X$(19)="The acid sprays all over me. I don't like this !!! Yo
u fool!!"
2328 X$(20)="She is in the middle of making something, but c
an't find"
2329 X$(21)="the hammer. She won't let me into the Chemistry lab"
2330 X$(22)="She smiles and thanks me for helping her and says tha
t she's"
2331 X$(23)="sorry that she has to go."
2332 X$(24)="She is not pleased with me and storms off in a rage"
2333 X$(25)="She is very beautiful, but she is in a bad mood"
2334 X$(26)="She slaps me across the face and storms off in a
rage"
2335 X$(27)="She grabs the chocolate, throws a my birthday present
on the"
2336 X$(28)="floor and storms off, still in a bad mood"
2337 X$(29)="As I scatter it around, the ice melts and I can safely
go South"
2338 X$(30)="It's one of those grotty BBC micros not an ORIC like
mine!"
2339 X$(31)="There doesn't seem to be much here"
2340 X$(32)="If you think I'm carrying half a ton of smelly rubbish
FORGET IT"
2341 X$(33)="Sorry, the teacher has locked it in a cupboard"
2342 X$(34)="The teacher takes it off me and opens the cupboard"
2343 X$(35)="That makes her MAD! 'WHAT DO I WANT THAT FOR?' she s
houts"
2344 X$(36)="I grab hold of the Van de Graaff ~ generator. I fee
l a "
2345 X$(37)="Bolt of electricity surge through my body!!!!"
2346 X$(38)="WRONG KEY!"
2347 X$(39)="The key fits. I open the box"
2348 X$(40)="It's far too heavy, besides it's not mine to take"
2349 X$(41)="The box is locked. I can't open it"
2350 X$(43)="The rubbish is everywhere"
2351 X$(42)="the egg breaks. What a mess! it is everywhere!"
2352 X$(45)="'WHAT ARE YOU DOING IN HERE?' shouts the teacher. I
am expelled"
2353 X$(46)="It has gone completely dark. I trip over and break m
y neck"
2630 RETURN
2640 L$="":FORH=1TOLEN(Z$)
2650 IF MID$(Z$,H,1)=" " THEN L$=RIGHT$(Z$, (LEN(Z$)-H)):H=H+60
2660 NEXT
2670 R=0
2680 L%=0:IF LEN(L$)<2 THEN RETURN
2690 FORH=1TO69
2695 IF LEFT$(N$(H),LEN(L$))=L$ THEN L%=1:R=H
2700 NEXT
2710 RETURN
2720 CLS:PAPER3:INK4:ZAP:WAIT10:ZAP
2730 CLS

```



```

2740 PLOT4,5,"THE SCHOOL OF DEATH"
2750 PLOT10,15,"AN ADVENTURE GAME BY"
2760 PLOT12,20,"S.W. LUCAS:"
2770 A%=0
2780 IFB%(6,1)=3THEN A%=A%+1
2785 IFB%(15,1)=3THEN A%=A%+1
2790 IFB%(26,1)=3THEN A%=A%+1
2795 IFB%(14,1)=3THEN A%=A%+1
2800 IFB%(13,1)=3THEN A%=A%+1
2830 RETURN
2840 CLS:PAPER2:INK0:ZAP:PRINT:PRINT:PRINT:PRINT:PRINT"HOW DARE YOU SPEAK
    TO ME LIKE THAT"
2841 PRINT:PRINT:PRINT"APOLOGISE TO ME NOW"
2842 REPEAT
2843 INPUT Z$
2844 UNTIL LEFT$(Z$,3)="SOR"
2845 PRINT"THAT'S BETTER:":PING:GOTO100
2890 IFP%=17THEN CLS:ZAP:PRINT"WELL YOU ARE IN THE ASSEMBLY HALL!!!"
:GOTO100
2891 IFP%=2THEN ZAP:INK0:PAPER1:PRINT:PRINT:PRINT"I TRY PRAYING BUT
IT DOESN'T HELP":GOTO100
2892 PING:PAPER2:INK0:PRINT:PRINT:PRINT"PRAYING MAY BE GOOD FOR THE
    SOUL BUT !!!":GOTO100
2940 GOSUB2640
2941 IFP%=27AND R=55THEN PRINTX$(15):PING:GOTO100
2942 IFP%=28AND R=56THEN PRINTX$(14):PING:GOTO100
2943 IFP%=27THEN PRINTX$(13):PING:GOTO100
2944 PRINT"There's not much of interest to read here":PING:GOTO100
3000 IFP%=10AND B%=1THEN PRINT:PRINT:PRINT:PRINT"I JUMP FROM THE TOP
AND BREAK MY NECK":GOTO3500
3010 IFP%<>47THEN PRINT"not at the moment":GOTO100
3011 GOSUB2640
3015 IFR=28THEN PRINTX$(46):PING:GOTO3610
3016 PRINT"PULL WHAT?":PING:GOTO100
3040 GOSUB2640
3060 PRINT"Now who's being silly ! ":ZAP:GOTO100
3111 GOTO100
3500 IFP%=10AND B%=1THEN PRINT:PRINT:PRINT:PRINT"I JUMP FROM THE TOP
AND BREAK MY NECK":GOTO3600
3510 PRINT:PRINT:PRINT:PRINT"I CAN'T JUMP HERE!":PING:GOTO100
3550 IFP%=10THEN D$(10)="AT THE TOP OF A ROPE":B%=1:GOTO100
3560 PRINT"DON'T BE STUPID ALL THE TIME":GOTO100
3580 IFP%=10AND B%=1THEN PRINT"O.K. I CLIMB DOWN THE ROPE":S%(10,1)=4
3:S%(10,2)=11
3581 IFP%=10AND B%=1THENS%(10,3)=17:S%(10,4)=9:D$(10)="IN A GYMNASIU
M"
3582 IFP%=10THEN B%=0:GOTO100
3583 PRINT"HOW CAN I GO DOWN?":PING:GOTO100
3600 PAPER1:INK4:PRINT:PRINT:PRINT:PRINT"I AM DEAD !"
3610 PRINT:PRINT"DO YOU WANT TO PLAY AGAIN":
3620 INPUT X$:IF LEFT$(X$,1)="Y"THEN RUN
3630 END
3700 IFAA=1THEN PRINT"I EAT THE RED HERRING. AAAGGGHHH!":SHOOT:GOTO3
600
3701 GOSUB2640
3702 IFR=100RR=11)AND AB=1THEN PRINT"DELICIOUS":PING:GOTO3710
3703 IFR=47AND AC=1THEN PRINT"THAT WAS DELICIOUS.":GOTO3710
3704 IFR=62THEN PRINT"SORRY CRISPS GIVE ME INDIGESTION":PING:GOTO100
3705 PRINT:PRINT:PRINT"NOT AT THE MOMENT":GOTO100
3710 FOR H=1 TO 3:IF V$(H)=G$(32)THEN V$(H)="" :G$(32)="" :NEXT
3711 FOR H=1 TO 3:IF V$(H)=G$(7)THEN V$(H)="" :G$(7)="" :GOTO100
3712 GOTO100
3800 IFAF<>1THEN PRINT"WHAT WITH?":PING:GOTO100
3810 GOSUB2640
3820 IFP%=4AND (R=100RR=110RR=230RR=240RR=62)THEN 3840
3830 PRINT:PRINT:PRINT"NOT AT THE MOMENT":PING:GOTO100
3840 PRINTX$(9)
3841 FOR D=1 TO 3:IF V$(D)=G$(33)THEN G$(33)="SOME CHANGE":V$(D)="SOME C
HANGE":NEXT
3844 N$(48)="CHANGE":PING:GOTO1628
3860 PRINTX$(8):S%(31,4)=26:S%(31,2)=29:S%(31,3)=40:PING:G$(11)="" :
G$(16)=""
3861 GOTO100
3870 CLS:EXPLODE:PRINTX$(18):WAIT10:PING:PRINTX$(19):GOTO3600
3900 IFP%<>41THEN PRINT"I'M NOT E.T. you know! I need a phone":PING:
GOTO100
3901 GOSUB2640
3902 IF LEFT$(L$,3)<>"HOM"THEN PRINT"I CAN'T REMEMBER THE NUMBER":ZAP
:GOTO100
3903 IFAZ<>5THEN PRINTX$(11):ZAP:GOTO100
3904 PING:PRINTX$(10):GOTO5000
3905 D$(3)=X$(12):PING:GOTO100
3910 X$(20)="" :X$(21)="" :PRINTX$(22):PRINTX$(23):PING
3911 G$(17)="" :S%(37,3)=36:GOTO100
3930 GOSUB2640
3940 IFP%<>38THEN PRINT"what is there here to kiss ??":ZAP:PAPER2:IN
K0:GOTO100
3950 IFR=22THEN PRINTX$(26):PING:G$(15)="" :GOTO100
3960 PRINT"EH?":PING:GOTO100
4000 IFP%<>34THEN PRINT"I can't load a tape at the moment!":ZAP:GOTO
100
4005 GOSUB2640
4006 IFAH<>2THEN PRINT"I don't have a tape recorder!":GOTO100
4010 IFR<>69THEN PRINT"as usual, the tape I have won't load":PING:GO
TO100
4020 PRINT"The program loads. I thought that it going to be anothe
r great game"
4030 PRINT"from S.W. Lucas":PING:PRINT"but it isn't."
4040 PRINT"It just displays the message:-"
4050 PRINT"Your task is to rescue the old lady from the thugs, fi
nd the five"
4060 PRINT"items of treasure, phone home for your parents to collect
you, and"
4070 PRINT"load your treasures into your parents car!!!"
4080 ZAP:PRINT:PRINT:PRINT"HINT ! What is the chemical that can me
lt ice?":PING:GOTO250
4100 IFP%<>42THEN PRINTX$(31):GOTO100
4110 CLS:PAPER7:INK0:ZAP:PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:WAIT10:PRINT
    "In amongst all the rubbish, "
4120 PRINT:PRINT"I can see a KEY"
4130 G$(48)="A key in amongst the rubbish":AI=1:N$(64)="KEY"
4140 GOTO100
5000 PRINT:PRINT:PRINT:PRINT:PRINT"WELL DONE!!!" :PRINT:PRINT"YOU HA
VE SOLVED THIS ADVENTURE!"
5001 PING:PRINT"Your parents are in the car park and have collecte
d your treasure"
5002 END
10000 HIRES"
20000 TEXT:GOTO100

```



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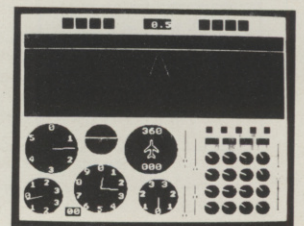
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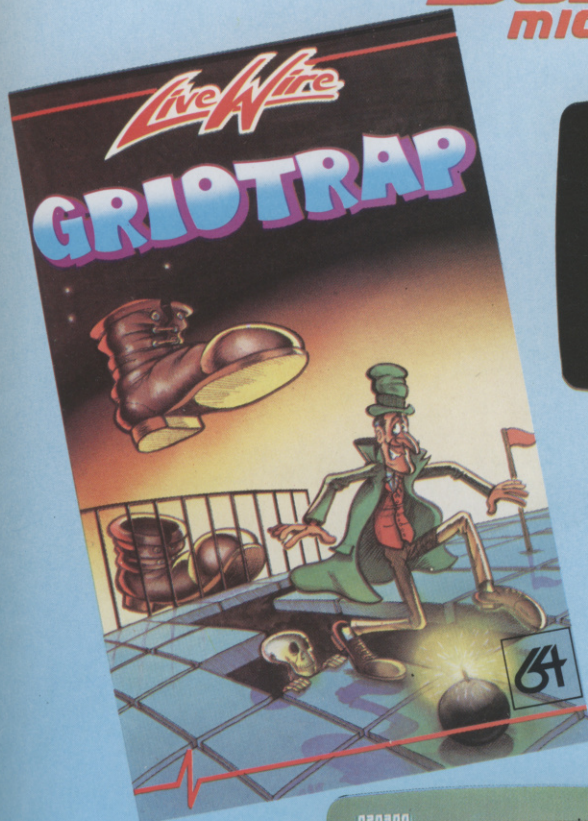
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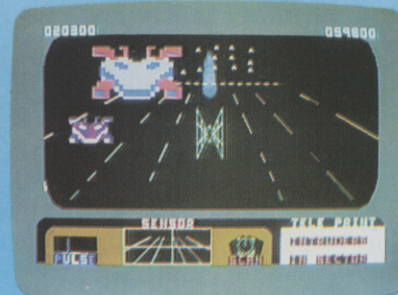
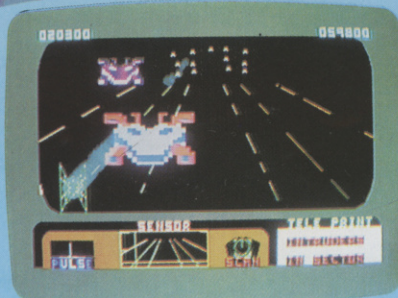
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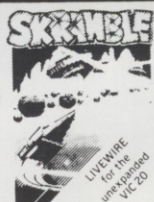
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